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April 1993

BENELUX

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MAAK KENNIS MET APTuser: BEL VOOR EEN GRATIS EVALUATION LOAN KIT

Mei 1993

Geachte Lezer,

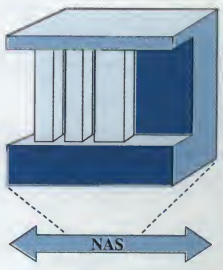
Als bijlage bij het hoofdstuk Information Management treft u de produktbeschrijving van **APTuser**, Digital's Report Writer, aan. **APTuser** is nu ook in Nederland leverbaar!

Brede groep gebruikers
APTuser is een flexibele en efficiënte "data retrieval" omgeving en "report writer". **APTuser** is ontwikkeld voor een brede groep gebruikers, van informatiedeskundigen tot programmeurs en niet-technische gebruikers.

Snel, gebruikersvriendelijk en (kosten)efficiënt
APTuser is bij uitstek geschikt voor degene die behoefte heeft aan een snelle, gebruikersvriendelijke en (kosten)efficiënte manier om rapporten samen te stellen. **APTuser** is eenvoudig te integreren in bestaande of nog te bouwen applicaties en kan gebruik maken van één of meerdere databases zoals RMS, Rdb, Oracle, Ingres en/of Adabas.

EVALUATION LOAN KIT:
Als u geïnteresseerd bent in een nadere kennismaking met APTuser: Digital heeft een Evaluation loan kit voor u ter beschikking (GRATIS, maar zolang de voorraad strekt!). U kunt bellen met de heer P. Groot, telefoon 030-83 2313.

Met vriendelijke groeten,
DIGITAL EQUIPMENT BV



APTuser

DATABASE ACCESS — DE-MYSTIFIED

In many organisations, a lack of information is not the problem… *access* to information is. Vast quantities of data are available for the asking; but the 'asking' is often out of the reach of users because they lack the skills necessary to turn raw data into useful information, or are simply too busy to use conventional database enquiry tools. What is needed is a truly easy-to-use software tool, with a minimal learning curve, that conceals powerful information processing capabilities behind a friendly and intuitive user interface. This is precisely the definition of APTuser.

- **Requires no programming experience, and no special hardware; runs on a character-cell terminal**
- **Accesses data in any RMS, Rdb, Ingres, Oracle or ADABASE database**
- **Incorporates a full-screen report layout designer and a report output browser**
- **Features a rich set of database and report-writing functions**

APTuser is a flexible and efficient data retrieval workbench and a report writer designed to support the needs of a wide group of users — from database experts looking for a faster way of achieving results, to new users who need an easy way to get at corporate business data.

For example: You know there's a database somewhere on the network which stores detailed information on your customers. You want to extract the top 100 customers on the basis of their turnover with you, and the kind of products they buy. With APTuser, you could produce that report quickly and easily by using the pre-formatted report templates built into APTuser. Or go a step further by using the full-screen editor to 'draw' your own report format. Then, you could print it out or incorporate it into a proposal. Think you might wish to run the report again next month? Just add it to the fully customisable menus of APTuser, and it'll be there the next time you need it.

No language to learn, no syntaxes to confuse you. All the complexity of the necessary database commands is hidden from you; you're *using* information, not battling with it.

Simple, but not basic

Within a surprisingly short time, you'll be completely at home with APTuser, and constantly coming up with new ways of putting your organisation's data assets to work. So is there a risk of APTuser becoming a little too 'simple' as your skills expand?

Not likely! APTuser has a rich set of database functions and capabilities:

- Supports RMS, Rdb, Oracle, Ingres, ADABASE; recognises standard VMS datatypes.
- Connects an unlimited number of files, relations and databases, without limits to the number of records or fields.
- Includes a rich mathematical function library for calculations; calculated fields and useful statistics (e.g., minimum, maximum, mean, total, standard deviation, count, value) can be included within your reports. Multi-Phase reports can be designed where particularly sophisticated statistical analyses are needed.
- Powerful selection options, such as 'greater than', 'greater than or equal to', 'less than or equal to', and so on, including the use of wildcards.
- Full format customisation including layout, display formats, field and report titles.
- Permits selection, break and/or sort on any field; supports multiple occurrences of a record in a view.
- Supports output in PC spreadsheet format (DIF, WK1).
- Contains a full production environment including a full menu system, access control, activation modes, spooler management, import/export and security.
- Includes fully documented APIs for adding functions and menu customisation; callable, programmable entry points.

Performance is never a problem, because APTuser is written in each database's native mode and uses SQL. Order APTuser today, and discover the power behind the simplicity.

Cost effective, easy to use report writer for VT users.

APTuser is available in both Development and RunTime forms. RunTime APTuser is acost effective way of requlary running reports which have already been put together. APTuser licensing gives you the flexibility of Traditional as well as Personal and Concurrent Use.

APTuser VMS Development V1.0	SPD 27.W6
CONCURRENT USE LICENCE	
CONOLD — CONDIST — 14 DAYS	✓
LICENCE	QL-00HAA-3B
MEDIA	QA-00HAA-H5
or	QA-00HAA-HM

APTuser VMS RunTime V1.0	SPD 27.W5
CONCURRENT USE LICENCE	
CONOLD — CONDIST — 14 DAYS	✓
LICENCE	QL-00JAA-3B
MEDIA	QA-00JAA-H5
or	QA-00JAA-HM

Introduction

Welcome to the second edition of the Digital Software Catalogue, especially produced for Luxembourg, Belgium and The Netherlands. This edition will provide you with the latest information about software products and updated versions. The next full colour Catalogue is planned for about 6 months' time.

ALPHA AXP SOFTWARE

Many of you will have heard about Digital's 21st-century, state-of-the-art chip technology: Alpha. Since the first Alpha AXP computers began shipping commercially in November 1992, many of Digital's software products have been made available on Alpha technology. And... cluster software on Alpha is available today! So you can buy and use Alpha's speed combined with today's infrastructure.

See the OpenVMS AXP pages for more information on the software we can supply to you.

LICENSING

Other good news is for User Based (Personal and Concurrent Use) Licence holders for layered products. You will find that you can move a User Based Licence from one machine to another as long as the Operating System is the same, no matter what hardware platform you are on! For instance, if you have a Personal Use Licence for FORTRAN on OpenVMS VAX and you purchase an Alpha system with OpenVMS, you can move the FORTRAN Personal Use Licence without any cost. True investment protection!

For the migration from current systems to Alpha, programs are in place to save you up to 85% (Alpha Ready Program). For more information, contact Digital.

PRICING

The Price List for Holland is enclosed with this catalogue. Price Lists for Belgium and Luxembourg are available upon request. Of course, you can call at any time for prices — use the telephone numbers shown on Page 4a and at the top of each page. We are now renting out our software through a professional renting company (see inserted leaflet).

DISTRIBUTION

In order to further optimise your software usage, we have put software on CD, with electronic 'unlock codes' and pre-configured software as an example. We offer licence management tools to comply with national and international law and to help you to plan your software investments. Note that Alpha software will only be distributed via CD.

POLYCENTER

This edition's special feature is on the system and network management environment (POLYCENTER). Again, new, easy-to-use tools have been introduced to manage multi-vendor infrastructures.

FINALLY...

This edition of the catalogue could not include our wide offerings of PC software. It is worth mentioning that Digital can offer Lotus, Microsoft and WordPerfect products at very interesting prices, and provides an array of unique services. Call 030-83 2100 in Holland, 02-729.88.88 in Belgium or 49.92.61 in Luxemburg to find out what Digital can offer you.

Yours sincerely,

IJsbrand Galema
Manager

Software Products BENELUX

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New this Issue

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Base systems

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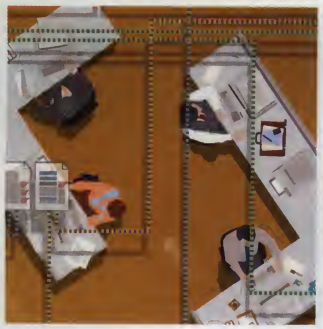
Communications

◆ New Product



Workgroup Computing

See also:

Development with COHESION

Information management

See also:

Advertisers Index

CPU Rating Letter Code Tables: *These tables provide a handy reference to your CPU code or ClusterWide points rating. For a full description of how the codes work, see the Help File pages.*

VMS ClusterWide, Traditional and ULTRIX CPU ratings

CPU	CW Points	CW Code	Trad Code
VS2000, VAXsrv3100	10	B	R
VS II	10	B	Q
VS3xxx, 8000, 4060/4VLC/4090 VAXsrv 3xxx, 4000-200/300 VAX ft 110/310/410/610 server	10	B	C
MV2000, MV31xx VAXStation updated to 8 VMS users	20	C	P
MV II	50	D	N
VAX 730	50	D	M
VAX 750	100	E	L
VAX 78x	100	E	K
MV3300, 3400, VAX ft110 VAX 4100	100	E	S
VAX 82xx	100	E	J
VAX 83xx; VAXsrv 6000-210/310	200	F	H
VAX 4000-200; MV3500, 3600, 3800, 3900†	200	F	B
VAX 6000-210/310; VAXft 310/410/610; VAX 4000-300/400	300	G	2
VAXsrv 6000-220/320/ 410/420/510/520; VAX 8530	400	H	G
VAX 86xx	400	H	F
VAX 8550, 8700, 8810	600	J	E
VAX 6000-220/320/410	600	J	3
VAXsrv 4000-500, 9000-110/ 310; VAX 4000-500/600, 6000-230/330/510	900	K	4
VAXsrv 9000-320/330/340 VAX 6000-240/340/350/420/ 610,7610, 8800, 8820, 10610	1200	L	D
VAX 6000-360/430/ 520/620, 7620, 8830, 10620	1800	M	U
VAX 6000-440/450/460/530/ 540/550/560/630/640/650/ 660,7630/7640, 8840, 8842, 8974, 9000-210/410, 10630/10640	2400	N	V
—	3600	Q	
VAX 8978, 9000-420/ 430/440	4800	S	5
—	6000	T	
—	7200	U	
—	9000	V	

ULTRIX/RISC CPU Letter Codes

DECstation 2100, 3100, 3100s, 5020 5025, 5120, 5125, 5133	A
DECstation 5200, 5240	C
DECsystem 3100, 5020, 5025, 5100, 5133	N
DECsystem 5200, 5240, 5400, 5500, 5900	S
DECsystem 5810	2
DECsystem 5820	3
DECsystem 5830	4
DECsystem 5840	D

Alpha AXP CPU Letter Codes

Alpha AXP 3300, 3400, 3400S	E
Alpha AXP 3500, 3500S	G
Alpha AXP 4610	J
Alpha AXP 4620, 7610	L
Alpha AXP 7620, 7630, 7640, 10610	N
Alpha AXP 10620, 10630, 10640	Q

Ordering Information

When ordering, please quote:

- Your Digital account number;
- Your discount agreement number (if appropriate);
- The full Licence Part Number and, where appropriate, the Media Kit Part Number, complete with your ClusterWide or CPU Code Letter;
- Your purchase order number; please be sure to let us know whether you're confirming a verbal order;
- A user contact name and telephone number within your organisation;
- **CPU serial number of system or VAXcluster Boot Node.**

Terms and Conditions

The Licensing of Software to those customers without a Digital Business Agreement 'DBA', is governed by the provisions of the Standard Terms and Conditions of the relevant Digital subsidiary. These Standard Terms and Conditions are available upon request.

For those customers with a 'DBA', the terms of that agreement govern the business with Digital.

Software Warranty

All Digital software comes with a warranty, and in most cases this includes telephone support. **In order to register you for telephone support, however, we need the serial number of the CPU on which your sofware will run.** You can help us help you by including the CPU serial number on your order if it's known to you.

Product Availability

As this catalogue covers more than one country occasionally a product listed here may not be available or a more suitable local alternative will be offered.

How to order

By telephone:

Holland: 030-83 2100
Belgium: 02-729.88.88
Luxemburg: 49.92.61

By fax:

Holland: 030-83 2310
Belgium: 02-729.88.00
Luxemburg: 49.23.08

By post:

Holland: You can post your order to your local Digital office in Utrecht, Rotterdam or Eindhoven

or post it to:

Digital Equipment bv
Antwoordnummer 1736
3500 VC Utrecht

Belgium: Digital Equipment NV/SA
Luchtschipstraat 1
1, Rue de l'Aéronef
1140 Brussels

Luxemburg: Digital Equipment SA
23, Rue de Bruyéres
1274 Howald

Purchasing Products & Services

ORDERING MADE EASY

Once you've selected the software product you require, you'll find the part numbers you need to order either on the same page or in the seperate *Priced Index*. Unless you have media for the correct version already on site, your initial purchase is likely to consist of:

Therefore order both:

Product Licence
QL-XXXXX-XX or **QB-XXXXX-XX**

and Product Media Kit
QA-XXXXX-XX

Recommended Support Services to order with above:

CDDS **QT-XXXXX-XX**

If you already have the media for the correct version then your initial purchase is likely to consist of:

Product Licence
QL-XXXXX-XX or **QB-XXXXX-XX**

30-day money back guarantee

If for any reason you are dissatisfied with your purchase, contact us within 30 days of delivery. We will tell you what you need to do to claim full credit. But remember: you must contact us within 30 days of delivery!

Consider the future

As always, it pays to look ahead when ordering. How can you be sure of staying up to date, of always having the right version of the software?

By purchasing the above recommended services via Digital; or by taking out a Software Update Subscription Licence (SUSL) and other services with your local Digital office after the 12 month warranty period.

Should you choose not to do either and you wish to update to a newer version of the software, you must first purchase an update licence. Additionally, you must have on site, or must purchase, a media kit for this newer version. Please see Page 7a for more information on Update Licences.

Listed below are the local Digital offices. Please contact the Sales Support Team there if you would like information on:

- Software Update and Installation Service (SUIS)
- Software Update Subscription Licence (SUSL)
- Other Hardware and Software Services

Our licensing policy

One of the most valuable assets of any company today is its unique know-how or 'intellectual property'. In Digital's case, software is a key part of that intellectual property, and the mechanism we use to protect it (and to recover our sizable investment in software development) is the software licence.

You don't actually purchase software from Digital: you purchase the right to use it. The software licence grants you permission to use a specific version of the software, under specific terms and conditions. These conditions permit the product to be run by a specific company on one specified computer system.

Licence + Media kit = Software

Once licensed, you may use a media kit (or 'H-Kit') to load and execute the software on the licensed system. This kit includes load media and a single set of manuals.

Thus, in most cases, an order for one piece of Digital software requires two separate part numbers: one part number for the relevant licence, and another for the media kit. In order to register your licence correctly please state the serial number of the CPU on which the software will run when ordering.

Occasionally, Digital may include the software licence with a specific piece of hardware. Or — particularly in the case of software for personal computers — a single part number conveniently brings both the licence and the media kit in a single shrink-wrapped package. But by and large, most software offered in this catalogue requires two part numbers, and where this is not the case it will be drawn to your attention.

Software Licences explained

THE RIGHT LICENCE FOR YOUR NEEDS

Digital recently announced the introduction of two new types of licence on over a hundred of our popular software products. In addition to purchasing capacity licences based on the power of the system (for example, Traditional or ClusterWide licences), you can now purchase licences on an individual-user basis. This means that if you have a small number of users on a medium to large system, you can make big savings on the previous prices of our licences.

Two types of user licences

The new licences are:

Personal Use Licence: These provide named individuals with guaranteed access to a particular application.

Concurrent Use Licence: Like the Personal Use Licence, Concurrent Use Licences are based on the number of users. However, access to a particular application is on a first-come, first-served basis limited to the number of users specified by the licence; users are not guaranteed access. This is ideal for applications with many occasional users.

With both types of licence, you buy a licence for every individual user; if you ever want to add more users, all you have to do is purchase the appropriate number of new licences. All user licences come with a Product Authorisation Key (PAK) for each order line item — so if you're ordering licences to run on several different non-clustered machines, you need to specify an order line for each system.

Additional discounts for volume purchase

On top of the savings you can make by purchasing our user licences, we're offering additional discounts for volume purchases. See table on page 9a.

The Points system for ClusterWide

The cost of a ClusterWide licence is directly related to the power of the VAX configuration on which the software will be run. We've assigned a points value to each type of VAX CPU (see the CPU Points Rating table below); by simply adding up the points assigned to each CPU in your cluster, you end up with a points total which then dictates the cost of the software licence for that configuration.

You may also, if you wish, purchase ClusterWide licences to run on selected individual CPUs in a VAXcluster for maximum flexibility. You can also use a ClusterWide licence on a single node which is not part of a VAXcluster.

The ClusterWide licence points values move up in bands. All you have to do is purchase the matching points value (or, if you fall between two bands, the next highest points value).

When you expand your configuration with new hardware, you need only buy additional ClusterWide licence(s) to give the total of CPU Points required.

Using CW Licence Codes

1. Calculate your cluster's points rating.

There's a points value assigned to each VAX CPU type in your VAXcluster. Simply add these up to arrive at the points rating for your cluster as a whole.

Example:

Take a VAXcluster made up of the following CPUs:

CPU	Points value	Number in cluster	Total
MV II	50	8	400
VAXsrv6000-310	200	2	400
		Points total for Cluster	**800**

The CPU Points Ratings table provides us with the points value associated with a MicroVAX II (50 points) and a VAXserver 6000-310 (200 points). Multiply these ratings by the number of such CPUs, and you arrive at the ClusterWide points total for the VAXcluster... 800 in this case.

Next, turn the points total into the appropriate ClusterWide Code Letter. A glance at the ClusterWide Letter Codes table shows that there is no exact match for our points value, so we simply choose the next highest points value — 900 — and read off the ClusterWide Code Letter, which is K.

The ClusterWide Code Letter stays constant for a given VAXcluster, and does not need to be re-computed until you add more CPUs to your VAXcluster.

CPU Points Ratings

1	2	3	4
CPU	POINTS PER CPU	№ IN YOUR CLUSTER	POINTS SUBTOTAL (col 2 × col 3)
VS2000, VAXsrv3100	10		
VS II	10		
VS3xxx, 8000, 4060/4VLC/4090 VAXsrv 3xxx, 4000-200/300 VAX ft 110/310/410/610 server	10		
MV2000, MV31xx, VAXStation with 8 VMS users	20		
MV II	50	8	400
VAX 730	50		
VAX 750	100		
VAX 78x	100		
MV3300, 3400, VAXft110, VAX 4100	100		
VAX 82xx	100		
VAX 83xx; 4000-200; VAXsrv 6000-210/310 MV3500, 3600, 3800, 3900	200	2	400
VAX6000-210/310; VAXft 310/410/610; VAX 4000-300/400	300		
VAXsrv 6000-220/320/410/420/510/520; VAX 8530	400		
VAX 86xx	400		
VAX 8550, 8700, 8810 VAX 6000-220/320/410	600		
VAXsrv 4000-500, 9000-110/310; VAX 4000-500/600, 6000-230/330/510	900		
VAXsrv 9000-320/330/340; VAX 6000-240/340/350/420/ 610, 7610, 8800, 8820, 10610	1200		
VAX 6000-360/430/520/620, 7620, 8830, 10620	1800		
VAX 6000-440/450/460/530/540/550/560/630, 7630/7640 8840, 8842, 8974, 9000-210/410, 10630/10640	2400		
—	3600		
VAX 8978, 9000-420/430/440	4800		
—	6000		
—	7200		
	9000		

ClusterWide Letter Codes

If your cluster's Points Total is...	10	20	50	100	200	300	400	600	900	1200	1800	2400	3600	4800	6000	7200	9000
Your ClusterWide Letter Code is...	B	C	D	E	F	G	H	J	K	L	M	N	Q	S	T	U	V

Total for your Cluster = 800

(Total of Col 4)

2. Use the ClusterWide Code Letter to identify the cost of the software and media kit.

Each ClusterWide-compatible product has its own ClusterWide price panel, with 17 different prices corresponding to the 17 different ClusterWide Code Letters.

ClusterWide Letter Codes

If your cluster's Points Total is...	10	20	50	100	200	300	400	600	900	1200	1800	2400	3600	4800	6000	7200	9000
Your ClusterWide Letter Code is...	B	C	D	E	F	G	H	J	K	L	M	N	Q	S	T	U	V

When your points total falls between two bands, use the next highest band. E.g.: 380 points is treated as 400 points, Letter Code 'H'. The extra points can be used immediately should you wish to add workstations or a CPU of the remaining points value to your configuration, without a further software purchase being necessary.

CW	B	C	D	E	F	G	H	J	K	L	M	N	Q	S	T	U	V
QL-UPIA9-J K	3000	8438	13876	19314	24752	30190	35628	41066	46504	51942	57380	62818	68256	73694	79132	84570	90000

K

In this example, the part number is QL-UPIA9-JK.

Prices quoted here are for example only.

Growing the ClusterWide way.

If you increase the size of your VAXcluster, you can expand an existing ClusterWide software licence to cover this larger cluster. Just purchase an additional ClusterWide Software Licence for the number of extra points required.

The example above shows a licence for a VAXcluster of 900 points (QL-UPIA9-JK). If a VAX 4000-400, a 300 point machine, were added to the VAXcluster, an additional 300 point licence would be required (QL-UPIA9-JG).

Update Licences

A Digital Software Licence is specified as a licence for a single version of the software used. For people who buy or use a new version of a software product outside a service contract, an Update Licence will be required on all software. This will not apply to customers who currently subscribe to the Software Update Subscription Licence (SUSL), because they already pay for the right to use new versions of their products. The media for the new version arrives through the Media and Documentation Distribution Service (MDDS) or Compact Disk Distribution Services (CDDS), which Digital strongly recommends you subscribe to.

Update Licences are used in three situations:

- When you buy a media kit for a new version of a software product for which you are already licensed.
- When you transfer a new version of a software product from CD-ROM or a network connection to a machine which has a licence for a previous version.

Update Licences usually cost around 25% of the initial licence price in the DECdirect Software Catalogue. A single Update Licence will be the most economical option if you wish to update your software environment less frequently than approximately every two years. If you intend to update your software more regularly, subscribing to the SUSL will often prove more cost-effective.

ClusterWide Licences

Original Licences	Update Licences		
QL-****9-JB	QL-****9-SB	QL-****9-JK	QL-****9-SK
QL-****9-JC	QL-****9-SC	QL-****9-JL	QL-****9-SL
QL-****9-JD	QL-****9-SD	QL-****9-JM	QL-****9-SM
QL-****9-JE	QL-****9-SE	QL-****9-JN	QL-****9-SN
QL-****9-JF	QL-****9-SF	QL-****9-JQ	QL-****9-SQ
QL-****9-JG	QL-****9-SG	QL-****9-JS	QL-****9-SS
QL-****9-JH	QL-****9-SH	QL-****9-JT	QL-****9-ST
QL-****9-JJ	QL-****9-SJ	QL-****9-JU	QL-****9-SU
		QL-****9-JV	QL-****9-SV

Traditional Licences

Original Licences	Update Licences
QL-*****-AA	QL-*****-RA
QL-*****-AB	QL-*****-RB

Personal and Concurrent Use Licences

Original Licences	Update Licences
QL-*****-2B	QL-*****-4B
QL-*****-3B	QL-*****-5B

Operating System Licences

Original Licences	Update Licences		
QL-*****-BB 1 User	QL-*****-YB	QL-*****-BG 32 User	QL-*****-YG
QL-*****-BC 2 User	QL-*****-YC	QL-*****-BH 64 User	QL-*****-YH
QL-*****-BD 4 User	QL-*****-YD	QL-*****-BJ 20 User	QL-*****-YJ
QL-*****-BE 8 User	QL-*****-YE	QL-*****-BK 40 User	QL-*****-YK
QL-*****-BF 16 User	QL-*****-YF	QL-*****-BL 10 User	QL-*****-YL
		QL-*****-BM 5 User	QL-*****-YM

How to use the price tables

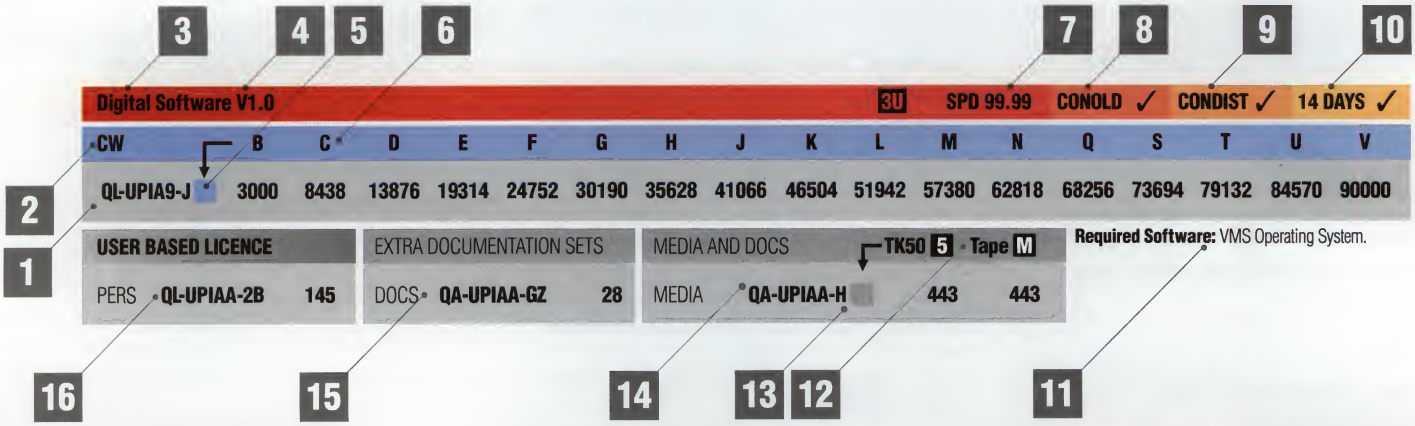
PACKED WITH INFORMATION TO MAKE ORDERING EASY

1 Software Licence part number.
This is the part number identifying the software: be sure to quote it when ordering. The part number is not complete without its suffix letter: see item 5.

2 Licence type.
This indicates the type of licence: CW=ClusterWide, TR=Traditional, UL=VAX ULTRIX, U/R=ULTRIX RISC.

7 SPD number.
The SPD (Software Product Description) number identifies a document that gives the legal specification to which a single software product conforms. If your software doesn't conform to these specifications, we'll fix it or provide a refund. Just phone or fax for a copy of a specific SPD.

12 Media Kit code.
Once you've purchased a licence for a specific piece of software, installation takes place using a media kit. Digital typically sells software on either TK50 tape cartridge (code '5') or 1600 bpi magtape (code 'M'): the code is used to indicate your requirement.



3 Product Name.
This reminder of the product's formal name can help minimise ordering errors.

4 Version number.
This is the version of the software that was the current release at the time this catalogue went to press. For the latest update, just call Digital. By default, we ship the latest version.

5 ClusterWide Rating code suffix.
When you copy your ClusterWide Rating Code into this box, it completes the Software Licence part number, uniquely identifying the licence for your VAX or VAXcluster.

6 ClusterWide Rating code.
This is a single-letter code representing the points value of your VAX or VAXcluster. For guidance on working out your ClusterWide Rating Code, please see page 6a.

8 CONOLD availability.
If ticked, this box indicates that documentation for the product is available on CD-ROM as part of our CONsolidated On-Line Documentation kit. For further information, please see article on *Compact Disk Distribution* on page 14a.

9 CONDIST availability.
If ticked, this box indicates that the product is available on CD-ROM as part of our CONsolidated DISTribution kit.

10 3 weeks availability.
If ticked, this box indicates that the product is a fast-ship item and can be delivered to you within 21 days of order. If not ticked, allow up to 28 days for delivery, subject to confirmation.

11 Related information.
This space is used to present additional information on complementary products and hardware/software requirements.

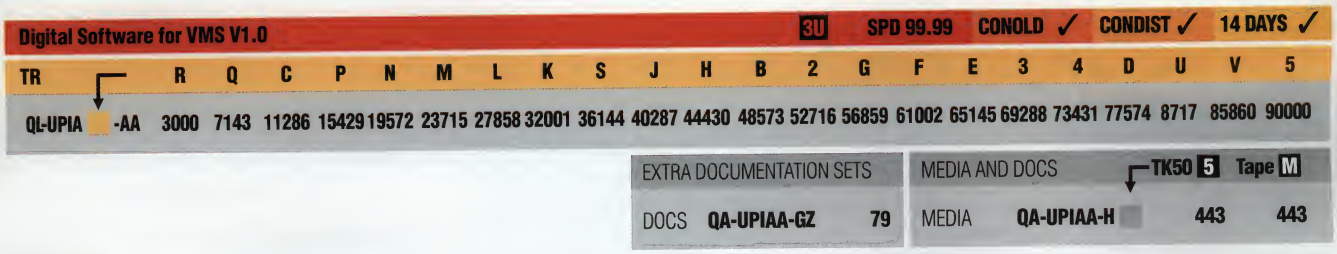
13 Media Kit code suffix.
When you copy your Media Kit code letter (either '5' or 'M') into this box, the Media Kit part number is completed.

14 Media Kit part number.
This is the part number identifying the media kit on which the software will be supplied: be sure to quote it when ordering. The part number is not complete without its suffix letter: see item 12.

15 Documentation part number.
This is the part number you should quote when ordering an extra set of documentation for the product.

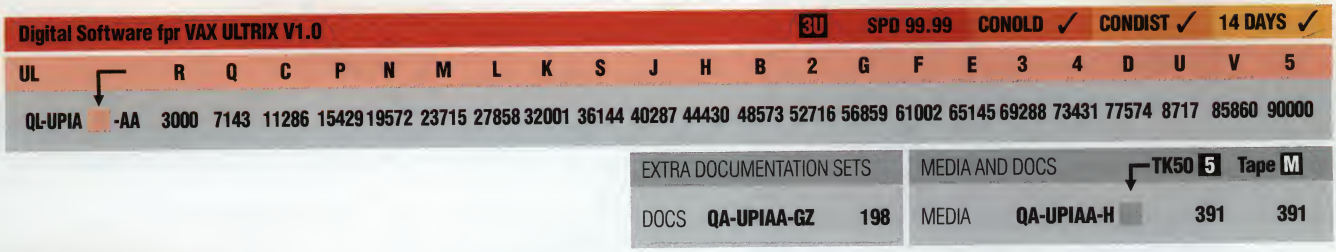
16 User Based Licence availability
When a product has personal and/or Concurrent Use Licences available in addition to ClusterWide, the part numbers and prices will appear here.

For prices, please refer to the seperate price list. Prices quoted here are for example only.



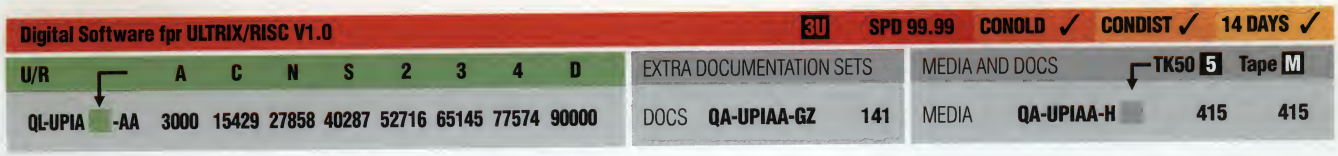
Traditional licences

Similar to the ClusterWide table, except that there are 22 letter codes and prices in the Traditional table and these relate to individual CPUs instead of ClusterWide points totals. For a list of CPUs and their associated letter codes, see Page 4a of this catalogue. For easy identifi-cation, Traditional price panels are colour-coded yellow.



VAX ULTRIX licences

Here too there are 22 letter codes and prices and, like the Traditional table, these relate to individual CPUs. For a list of CPUs and their associated letter codes, see Page 4a of this catalogue. For easy identification, VAX ULTRIX price panels are colour-coded pink.



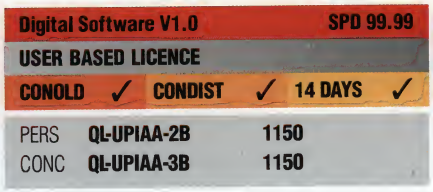
ULTRIX/RISC licences

Here there are 8 letter codes and prices relating to individual CPUs. For a list of CPUs and their associated letter codes, see the ULTRIX/RISC table on Page 4a this catalogue. For easy identifi-cation, ULTRIX/RISC price panels are colour-coded green.

Volume Discount Table for Personal and Concurrent User Licences

Licences Purchased	Discount %
1-4	0%
5-24	5%
25-49	7%
50-99	10%
100-199	12%
200-249	15%
250-299	17%
300-399	20%
400-499	22%
500-599	24%
600-699	26%
700-799	28%
800-899	30%
900-999	32%
1000+	35%

Prices quoted here are for example only.

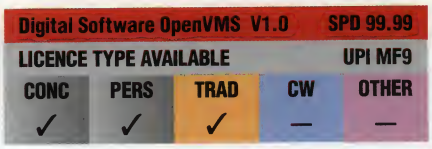


Personal Use Licences

These provide a named individual with guaranteed access to a particular application.

Concurrent Use Licences

Like the Personal Use Licence, Concurrent Use Licences ar based on the number of users. However, access to a particular application is on a first come, first served basis limited to the number of users specified by the licence.



Licence Availability Panel

Where there is insufficient space on the page to give you all the information on a particular product's licensing types, we use this panel as a pointer. Refer to the indicated priced index at the back for more details (in this case you would look at the OpenVMS Traditional Licences, and the User Based Licences), or call Digital.

Requirements for Single Use Licences

Both Personal and Concurrent Use Licences require LMF V1.1 to install the Product Authorisation Key (PAK). This has been included with VMS since V5.4-3. If you have between VMS V5.2 to V5.4-2 inclusive and wish to use these licences, LMF V1.1 can be obtained as media kit QA-XANAA-H5/M. The licence is already part of VMS.

Automated operations — hands off!

TOWARDS THE INTELLIGENT, SELF-MANAGING COMPUTING ENVIRONMENT WITH POLYCENTER

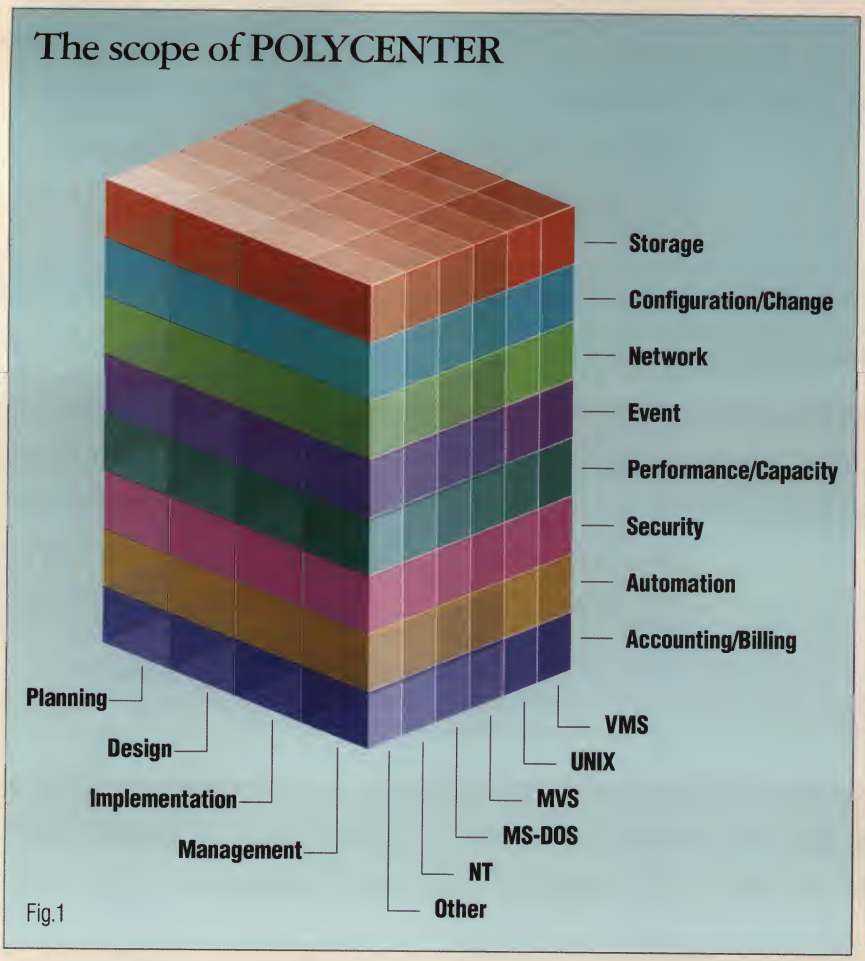


Fig.1

Information Systems form the backbone of the successful modern enterprise. Manage your IS investment well, and it can provide the springboard to continued business growth and commercial success. Manage it less well, and it will, at best, make a diminished contribution to the performance of your enterprise, or even seriously challenge the effectiveness of the entire organisation. No company understands these lessons better than Digital, running as it does the world's largest private computer network.

So what exactly does IS management consist of? Network management tools? No, these form only part of it. Security management systems? No again, although security considerations are a vital element of the task. In fact, Digital's solution for multi-vendor IS management — POLYCENTER — defines eight separate but related areas:

- Storage Management
- Configuration and Change Management
- Network Management
- Event Management
- Performance and Capacity Management
- Security Management
- Automation
- Accounting and Billing

Any organisation with a significant investment in IT will undoubtedly have software tools already in place to address one or more of these management areas. Superficially, therefore, by simply adding further tools in the remaining categories, an enterprise could be said to have addressed the entire IS management task! In reality, however, this is the fire-fighting approach to the problem: reacting to a string of crises with a disk defragmenter here, an archiving system there, will leave the enterprise with a string of unrelated, overlapping and possibly incompatible 'point solutions'. You will not have a single, integrated approach to managing your IT investment. You will not have a cohesive architecture in place which is capable of driving the entire IT programme towards the ideal of an intelligent, self-managing computing environment. You will not, in short, have POLYCENTER.

THE INTELLIGENT, SELF-MANAGING COMPUTING ENVIRONMENT

Before we go much deeper into POLYCENTER, let's take a glimpse at what all this talk about 'intelligent, self-managing computing environments' is about. Here's a deliberately simple example: A user reports a problem with an application. Someone from the IS team — let's call her Jane — is charged with solving the problem. In a conventional environment, Jane takes the following steps:

- She puts a hold on dependent activities, so that the problem doesn't get any worse.
- She backs up the data disk as a precaution.
- She discovers that the problem arose through a lack of disk space.
- Jane looks for redundant data on the disk with a view to deleting it.
- She decides that there is data which is safe to delete.
- She carries out the deletions, then restarts the application after consulting users and developers.
- Jane releases the hold on dependent activities.

We've deliberately ignored all the other time-consuming steps that Jane must follow, such as notifying relevant personnel and documenting the problem. We've also assumed that the problem conveniently arose during office hours, when support personnel were available.

Now consider what would have happened had Jane worked in a POLYCENTER environment. Essentially, the problem wouldn't have arisen: the management software would have 'seen the problem coming', because a threshold would have been set to alert the system when less than a certain percentage of disk space remained. It would then have checked the action database for that application or disk, and noted that the required response in that situation was to check the disk for data that is dated before a certain time. It would then have deleted or archived the redundant data, and communicated its actions to a log, mail message, text pager or voicebank according to the priority pre-assigned to that particular routine.

There are alternative response scenarios, but even with this simple example the difference between the conventional and

A POLYCENTER PRODUCT

POLYCENTER approach is clear: the conventional approach is essentially reactive rather than proactive; it calls for many people and groups to become involved, and the solution is more costly as a result. With POLYCENTER, the problem would not have occurred in the first place, and Jane would have been free to bring her expertise to bear on much more mission-critical challenges.

Apply the philosophy behind this example, across the eight key areas within the POLYCENTER solution, across national, geographical, hardware and operating-system boundaries, and the promise of POLYCENTER becomes clear.

POLYCENTER: DIGITAL EUROPE'S MAJOR IS PROJECT FOR 1993

As will be apparent by now, POLYCENTER is much more than network management: it is Digital's multi-vendor enterprise management strategy. The ultimate goal of this strategy is to provide totally intelligent, self-managing IS environments, through a set of products and supporting services. These products and services (some of which may come from third parties) share a common commitment to a unifying architectural framework — Digital's Enterprise Management Architecture (EMA).

There is no 'standard' POLYCENTER package of products and services: instead, by choosing software products and services that fall under POLYCENTER's EMA-based, standards-compliant 'umbrella', you, the Digital customer, will be able to assemble a customised solution that will automate your system and network management tasks.

POLYCENTER encompasses SNA

In September last year, Digital announced POLYCENTER SNA Manager, a product which offers — for the first time — peer-to-peer connections between IBM and Digital network management architectures. POLYCENTER SNA Manager allows both networks to be managed as a single system.

The product was jointly developed with Systems Center, and combines POLYCENTER SNA Manager from Digital with System Center's Solve:Connect for Digital's EMA (Enterprise Management Architecture). This allows SNA, DECnet Phase IV and V, and TCP/IP networks to be controlled simultaneously from POLYCENTER Network Manager, NetView or Net/Master.

For the first time, IBM and Digital customers will be able to move beyond proprietary SNA and take control of a truly open network. The benefits are enormous, delivering greatly improved response time and reduced training costs.

The scope of the POLYCENTER solution is vast: see Fig.1. It is far from being a Digital- or OpenVMS-specific solution: 'openness' lies at POLYCENTER's core, with support for standards (OSI, OSF, IETF), and management capabilities for UNIX environments (SunOS, HP-UX, IBM AIX, SVID, ULTRIX and so on), PC environments (MS-DOS, Windows NT) and IBM environments such as MVS. (See panel *POLYCENTER encompasses SNA*.) And, as Fig.3 demonstrates, POLYCENTER includes both Digital and compliant third-party products to deliver its overall capability.

POLYCENTER is already the major IS project for Digital Europe in 1993. In fact,

POLYCENTER will let you manage all your computing resources across all the hardware platforms and operating systems in the enterprise... in a single, consistent way.

Digital's goal is to use the POLYCENTER solution to manage every system, every network, every database and application, throughout Digital's European operations from just four centres. A great deal of POLYCENTER-based functionality is available now: some 40 Digital and third-party products are available *today* to manage IBM, Sun, HP, OpenVMS and UNIX environments. And, as you'll see from Fig.2, Digital is on a structured, systematic path designed to deliver the full promise of POLYCENTER — centralised or distributed multi-vendor IS management — by 1995/96. By choosing POLYCENTER products and services today, you gain the management tools you need now while aligning your organisation with a solid IS management strategy that will take the enterprise towards the automated, proactive, cost-effective and self-managing computing environment of the future.

POLYCENTER brings about name changes

As key products are brought under the POLYCENTER umbrella, Digital is changing certain product names to reflect their integration into the POLYCENTER solution.

- **Remote System Manager (RSM)** becomes **POLYCENTER Software Distribution Manager.**
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Timeline for the POLYCENTER solution

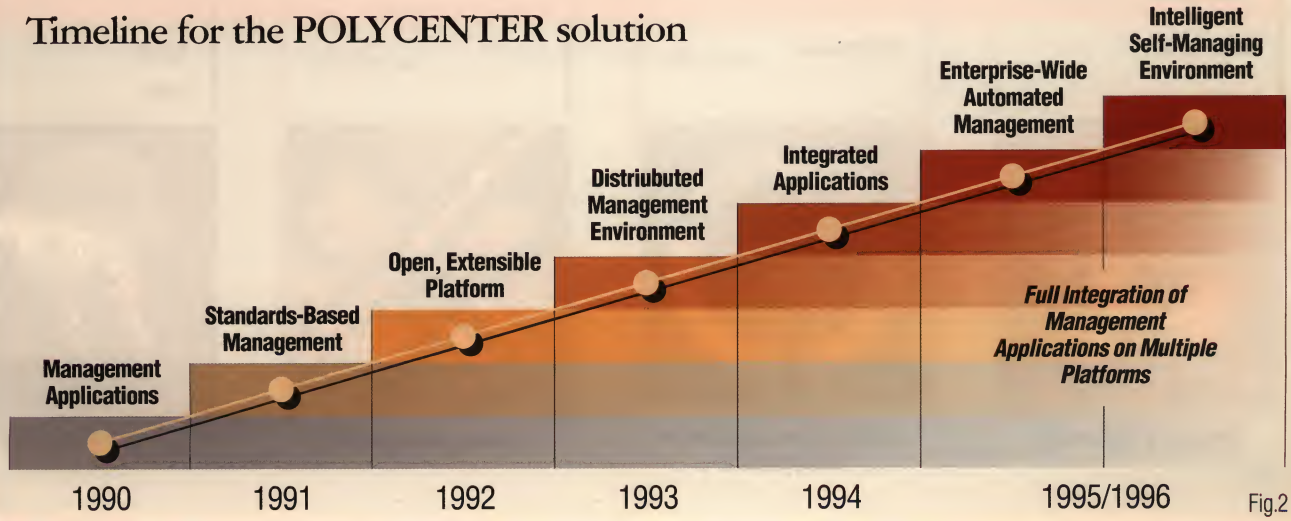


Fig.2

Compact Disk Distribution

SOFTWARE AND DOCUMENTATION ON CDS

This is the most efficient and environmentally friendly way to obtain the majority of your software and associated documentation.

CD-ROM technology allows Digital to manufacture up to 600 megabytes of durable, read-only and random-access media quickly and reliably, with minimal use of paper and fossil fuels. At the same time, you're able to have access to the latest documentation set on every workstation or X-terminal equipped desk, and have a set of program binaries on site for immediate use. All the Digital software for the new Alpha AXP platform will be on CD only.

These Compact Disks currently come in two forms:

CONOLD – CONsolidated OnLine Documentation.

and/or

CONDIST (CONsolidated DISTribution)

... and offer you:

- A simple and cost effective way of receiving your software and documentation
- Separate sets of CDs for:
  - OpenVMS VAX System and Application Software
  - OpenVMS AXP System Software
  - OpenVMS AXP Application Software
  - ULTRIX System and Application Software
  - OSF/1 System Software
  - OSF/1 Application Software
- A quicker way of obtaining new software products.
- Cost saving through space reduction for software libraries.

Updating

Update service offers a cheap way to buy these CD products, and ensures that you are kept fully up-to date on new software products and enhancements. You can receive any set of CDs as a service on an ongoing basis by purchasing one of the following where appropriate:

CD Distribution Service (CDDS):

- Delivers a regular update set of CDs containing applications

MDDS on CD

- Delivers an update set of CDs containing the Operating System when updates and enhancements are made.

Please refer to the appropriate product price panel to confirm availability on CD for non-Alpha AXP products.

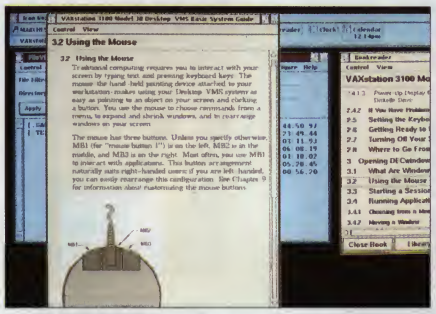
Consolidated Online Documentation

The Consolidated Documentation Disk provides several tens of thousand pages of manuals, with graphics, proportionally spaced fonts and fast access for DECwindows-equipped desks anywhere on your Local Area Network.

The use of this media allows regular updates to the manual set without recourse to 'update pages', cardboard boxes in cardboard boxes, shrinkwrap and (in the case of the VMS manual set) 18 feet of vinyl and paper. Just plug in the latest disk to update the manuals of your workstation user community.

The OpenVMS Consolidated Documentation Disk replaces over 50 feet of shelf space that would otherwise be required for the corresponding library of OpenVMS documentation. Manuals included on the disk are formatted for use by the DECwindows Bookreader from anywhere on the Local Area Network, by any number of simultaneous users. The documents on these disks are for viewing only, and cannot be printed.

Please note: The current OpenVMS Consolidated Online Documentation Disk requires access by the DECwindows Bookreader application, provided in VMS V5.3 or later.



The DECwindows Bookreader displays both text and graphics, replacing printed documentation.

Consolidated Distribution

With a full set of documentation available for immediate use by a workstation or X-terminal user community, the next most common request is for Digital to cut its software delivery lead times. Hence the production of the Consolidated Distribution Kit, which contains the program binaries (and Software Product Descriptions) for Digital products.

All that is needed to enable the products provided on the disk is the appropriate Product Authorisation Key (and the corresponding software licence). The PAK is included in the licence documentation.

The InfoServer is an ideal reader for your CD software giving access anywhere on the Ethernet LAN.

Ordering Details

OpenVMS VAX Consolid. Documentation CD (CONOLD)
- By itself **QA-VYR8A-G8**

OpenVMS VAX Consolidated Distribution CD (CONDIST)
- By itself **QA-VWJ8A-A8**

OpenVMS VAX CD Distribution Service (Bi-Monthly CONOLD+CONDIST)
Per year: **QT-YL48C-C8**

ULTRIX Consolidated Documentation CD (CONOLD)
- By itself **QA-GEW8A-G8**

ULTRIX Consolidated Distribution CD (CONDIST)
- By itself **QA-XLU8A-H8**

ULTRIX Distribution Service (Bi-Monthly CONOLD+CONDIST)
Per year: **QT-XLV8A-C8**

OpenVMS AXP O/System (CONDIST and CONOLD).
- By itself **QA-MT1AA-H8**
- MDDS on CD **QT-MT1AA-E8**

OpenVMS AXP Application (CONDIST and CONOLD)
- By itself **QA-03XAA-H8**
- Regular CDDS **QT-03XAA-C8**

OSF/1 AXP O/System (CONDIST and CONOLD)
- By itself **QA-MT4AA-H8**
- MDDS on CD **QT-MT4AA-E8**

OSF/1 AXP Application (CONDIST and CONOLD).
- By itself **QA-054AA-H8**
- Regular CDDS **QT-054AA-C8**

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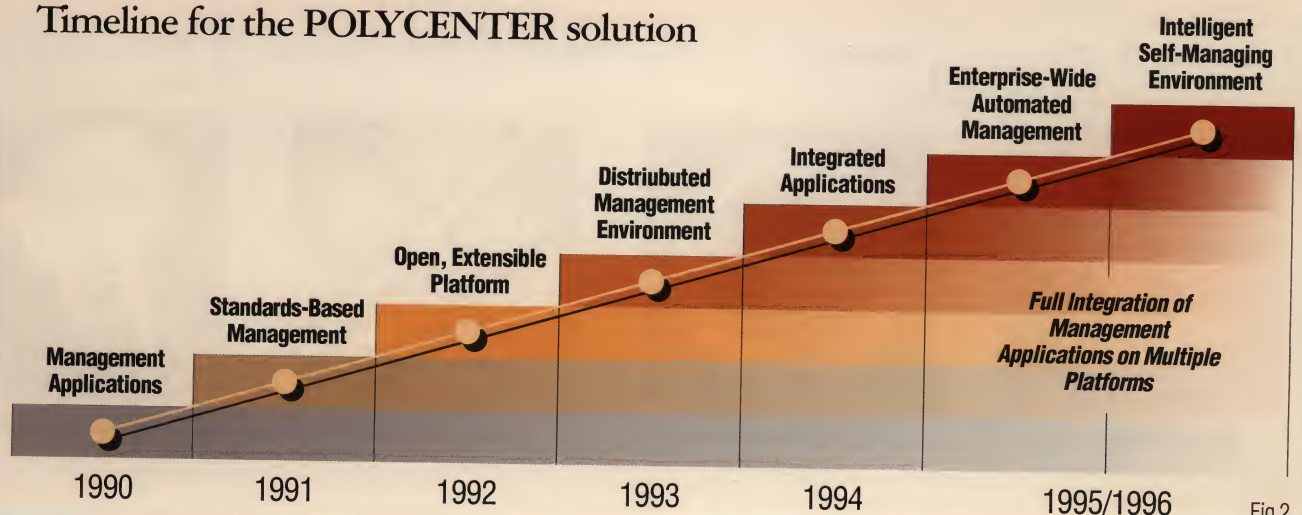

Fig.2

AUTOMATED OPERATIONS — HANDS OFF!

POLYCENTER IS PRODUCTS *AND* SERVICES.

Digital offers a variety of strategic, operational and technical consulting services as part of the POLYCENTER solution, to help ensure that your POLYCENTER implementation is a success.

Executive Consulting Services help you formulate overall IS directions in the context of your strategic, corporate business goals. These programmes include IS Executive Seminars, Achieving Strategic Alignments and Partnerships (ASAP), Business Process Re-Engineering, Digital's Architecture Response Teams (DART), and an Investment Evaluation Methodology (IEM) Consulting Service.

POLYCENTER Management Consulting Services help you translate IS goals and requirements into procedures, disciplines, metrics and service-level agreements. These services include IS Operational Reviews, IS Organisational Design, Lights-Out Computing Design and Implementation, Baseline Security Management Services, Security Reviews, Policies and Procedures, and Network Implementation, Management and Costing.

The POLYCENTER Function-Specific Services provide you with the highly focused support you need as you move towards applying specific products to each of the POLYCENTER areas. For example, as you tackle Configuration and Change Management, the Asset Tracking Service can greatly speed up the process.

Recognising that we cannot provide *all* the solutions to your management needs, Digital works together with its Complementary Solutions Partners to round out the POLYCENTER portfolio of products and services. In addition, Digital offers a wide range of training courses for POLYCENTER products.

POLYCENTER — FOR TODAY AND TOMORROW.

POLYCENTER enables you to manage a widely — even globally — distributed, multi-vendor computing environment. In its fullest implementation, POLYCENTER will let you manage *all* your computing resources across *all* the hardware platforms and operating systems in the enterprise… in a single, consistent way.

POLYCENTER Product Portfolio

Storage Management	Configuration and Change Management	Network Management	Event Management
Storage Library System (SLS)	**POLYCENTER** System Census	**POLYCENTER** Network Manager	**POLYCENTER** System Watchdog
DECnsr	**POLYCENTER** Account Manager	**POLYCENTER** SNA Manager	**POLYCENTER** Console Manager
PATHWORKS Desktop Backup	**POLYCENTER** Software Distribution Manager	**POLYCENTER** Extended LAN Manager	VCS
DEC File Optimizer	CA-NETMAN for VAX VMS	**POLYCENTER** Terminal Server AM	DECamds
VAX Disk Striping		NMCC/VAX Ethernim	REMS
Volume Shadowing		LAN Traffic Monitor	
ULTRIX Disk Shadowing		Terminal Server Manager	
CA-ARCHIVER for VAX VMS		HUBwatch	
CA-1 for VAX VMS			
UIS-ARCHIVE			
UIS-ARCHIVE Connection			
Service Products			
DECathena	**DECathena**		**DCMX** **UDM**

Fig.3

A POLYCENTER PRODUCT

In turn, this will let you keep your IS users more productive for more of the time, and satisfy the enterprise's changing information needs — all within a cost-effective and planned strategy.

POLYCENTER enables the professionals within your IS team to carry out remote management, ensuring that end users are not diverted from their jobs to do system management.

POLYCENTER can cope with increases in system size and complexity by providing the extra management needed, within a controlled cost structure. In addition, it will deal effectively with the increased decentralising of computing power and enable your IS department to stay in step with — or a step ahead of — the enterprise's changing needs.

Investing in POLYCENTER products and services can reduce the cost of your IS operations in two ways. First, in the area of operations automation, where you should see very clear benefits in the reduction of staff and staff overheads, and the re-deployment of skilled staff to more value-added roles in the enterprise. Second, POLYCENTER gives you the ability to downsize IS operations by moving applications onto smaller platforms.

Today's IT Directors face a future of complex, often conflicting demands. On the one hand, the enterprise needs better, more predictable computing services that fully support the needs of the organisation and its personnel. On the other, the computing environment is growing ever more complex, with multi-vendor, multi-platform systems and networks. Couple this with a worsening shortage of the highly specialised human skills needed to support complex information systems, and increasingly tight restrictions on IS overhead costs, and it's clear that a powerful, far-sighted strategy is needed to deliver real value for money from your enterprise's investment in IT. Digital firmly believes that POLYCENTER provides that strategic solution.

POLYCENTER
Performance Solution
- Data Collector
- Monitor
- Performance Advisor
- Capacity Planner

DECamds

DECtrace

POLYCENTER
Security Family
- Compliance Manager
- Reporting Facility
- Intrusion Detector

DEC SecurityGate

ClydeSENTRY
- DIALBACK
- KBLock
- AUDIT
- Security Toolkit

POLYCENTER
Scheduler

UIS-MANAGER

POLYCENTER
Accounting Chargeback

UIS-PACS

UIS-PACS Connection

DECathena

DECathena

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Security Management

Automation

Accounting and Billing

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  - OpenVMS AXP Application Software
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  - OSF/1 System Software
  - OSF/1 Application Software
- A quicker way of obtaining new software products.
- Cost saving through space reduction for software libraries.

Updating

Update service offers a cheap way to buy these CD products, and ensures that you are kept fully up-to date on new software products and enhancements. You can receive any set of CDs as a service on an ongoing basis by purchasing one of the following where appropriate:

CD Distribution Service (CDDS):

- Delivers a regular update set of CDs containing applications

MDDS on CD

- Delivers an update set of CDs containing the Operating System when updates and enhancements are made.

Please refer to the appropriate product price panel to confirm availability on CD for non-Alpha AXP products.

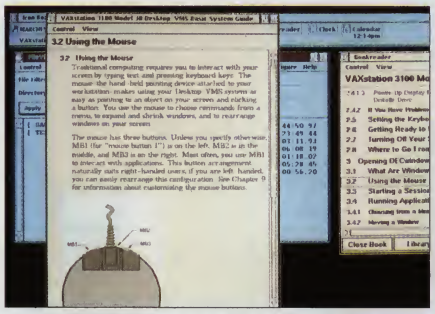
Consolidated Online Documentation

The Consolidated Documentation Disk provides several tens of thousand pages of manuals, with graphics, proportionally spaced fonts and fast access for DECwindows-equipped desks anywhere on your Local Area Network.

The use of this media allows regular updates to the manual set without recourse to 'update pages', cardboard boxes in cardboard boxes, shrinkwrap and (in the case of the VMS manual set) 18 feet of vinyl and paper. Just plug in the latest disk to update the manuals of your workstation user community.

The OpenVMS Consolidated Documentation Disk replaces over 50 feet of shelf space that would otherwise be required for the corresponding library of OpenVMS documentation. Manuals included on the disk are formatted for use by the DECwindows Bookreader from anywhere on the Local Area Network, by any number of simultaneous users. The documents on these disks are for viewing only, and cannot be printed.

Please note: The current OpenVMS Consolidated Online Documentation Disk requires access by the DECwindows Bookreader application, provided in VMS V5.3 or later.



The DECwindows Bookreader displays both text and graphics, replacing printed documentation.

Consolidated Distribution

With a full set of documentation available for immediate use by a workstation or X-terminal user community, the next most common request is for Digital to cut its software delivery lead times. Hence the production of the Consolidated Distribution Kit, which contains the program binaries (and Software Product Descriptions) for Digital products.

All that is needed to enable the products provided on the disk is the appropriate Product Authorisation Key (and the corresponding software licence). The PAK is included in the licence documentation.

The InfoServer is an ideal reader for your CD software giving access anywhere on the Ethernet LAN.

Ordering Details

OpenVMS VAX Consolid. Documentation CD (CONOLD)
- By itself **QA-VYR8A-G8**

OpenVMS VAX Consolidated Distribution CD (CONDIST)
- By itself **QA-VWJ8A-A8**

OpenVMS VAX CD Distribution Service (Bi-Monthly CONOLD+CONDIST)
Per year: **QT-YL48C-C8**

ULTRIX Consolidated Documentation CD (CONOLD)
- By itself **QA-GEW8A-G8**

ULTRIX Consolidated Distribution CD (CONDIST)
- By itself **QA-XLU8A-H8**

ULTRIX Distribution Service (Bi-Monthly CONOLD+CONDIST)
Per year: **QT-XLV8A-C8**

OpenVMS AXP O/System (CONDIST and CONOLD).
- By itself **QA-MT1AA-H8**
- MDDS on CD **QT-MT1AA-E8**

OpenVMS AXP Application (CONDIST and CONOLD)
- By itself **QA-03XAA-H8**
- Regular CDDS **QT-03XAA-C8**

OSF/1 AXP O/System (CONDIST and CONOLD)
- By itself **QA-MT4AA-H8**
- MDDS on CD **QT-MT4AA-E8**

OSF/1 AXP Application (CONDIST and CONOLD).
- By itself **QA-054AA-H8**
- Regular CDDS **QT-054AA-C8**

Base Systems

The Network is the System. The system comprises hardware and software from a variety of manufacturers, third parties and in-house sources. Digital's absolute competitive strength — and that of our customers — is the degree to which computer resources across an enterprise can be integrated into one cohesive computing environment. Digital's operating systems are a key part of this overall computing strategy.

As you read this catalogue, Digital will be releasing the first end-user version of a key new operating system: DEC OSF/1; see overleaf for more details. Supported by other key operating systems such as OpenVMS, Windows, MS-DOS and SCO UNIX, Digital's customers today have a unique flexibility of choice and an unparalleled degree of integration between operating systems and hardware platforms. In short, their computing future is secured and assured.

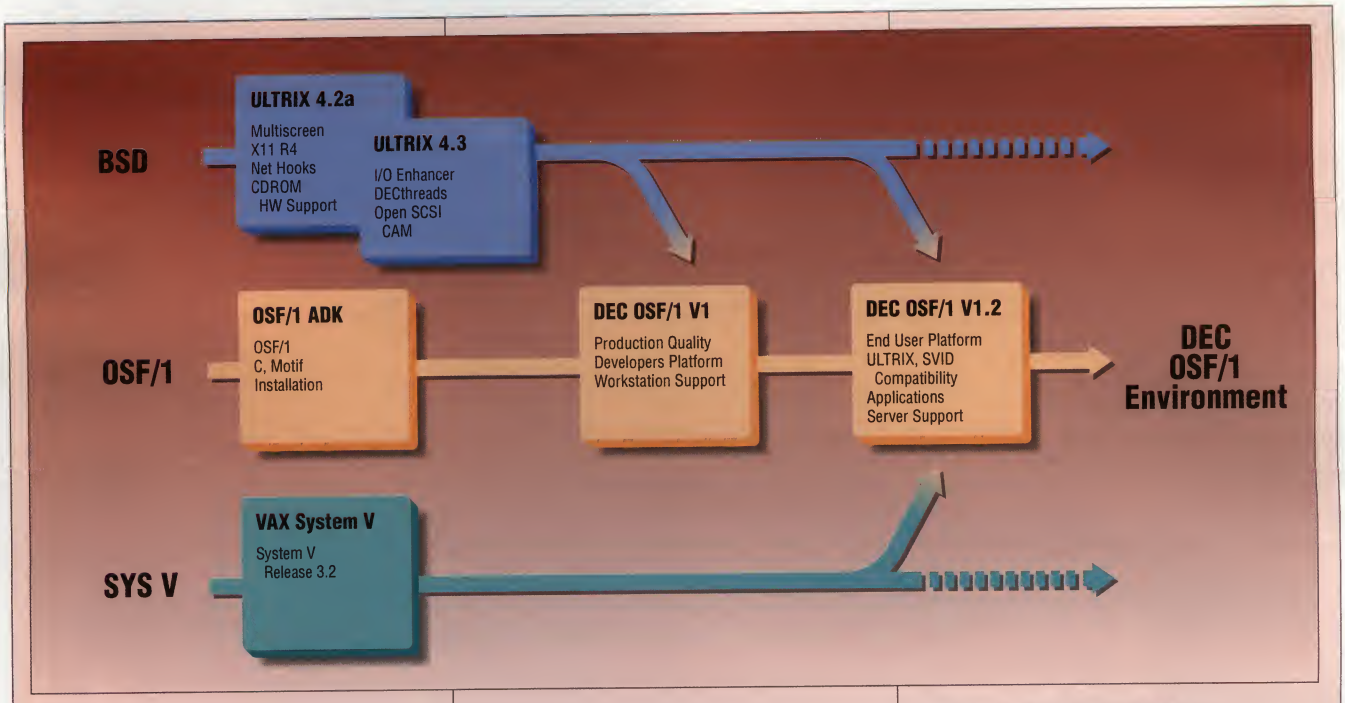
The Base Systems section demonstrates how Digital's core operating environments are built, enhanced and connected. Later sections show how you can build on this dependable system core using communication products to link your enterprise worldwide, and install applications that fit your business needs.

ORDER NOW
SEE PAGE 4a FOR YOUR LOCAL DIGITAL OFFICE

Help us to help you: Don't forget!
We need the name of a system manager and the CPU serial number whenever you order software.

INSIGHTS

Introducing DEC OSF/1



As today's businesses work towards reducing computing costs, the UNIX operating system plays an important part in their decision-making process. You'll find UNIX in all segments of the commercial market — from Wall Street trading floors and commercial banks of all sizes, to independent small businesses and large chain stores. Digital's new OSF/1 is aimed at helping these customers meet the challenge.

DEC OSF/1 is a modern UNIX operating system designed to handle a wide spectrum of computing needs. It provides an integrated environment that works with new and existing computing platforms. And — as you'd expect from Digital — DEC OSF/1 technology is based on established and emerging standards to protect your future computing investments.

DEC OSF/1 IS A UNIFIED UNIX.

DEC OSF/1 implements the definition jointly set by the Open Software Foundation (OSF) and UNIX System Laboratories (USL) for a unified UNIX. This means you never have to worry about choosing the wrong UNIX; the standards and compatibilities you need are built in.

As a unified UNIX, DEC OSF/1 supports the OSF Application Environment Specifications (AES), System V Interface Definition (SVID), Motif Graphical User Interface, Distributed Computing Environment (DCE), Distributed Management Environment (DME), X11, POSIX and XPG3.

Although Digital currently offers implementations of all three major UNIX variants (BSD, System V and OSF/1), we expect to see UNIX users migrating to DEC OSF/1 — because this is the UNIX with the best features for today's and tomorrow's computing needs. DEC OSF/1 works with other systems with built-in System V and BSD compatibility, so your move to DEC OSF/1 won't just be a smart one: it'll be an easy one too.

ULTRIX users are fully supported too. DEC OSF/1 offers source and data compatibility with ULTRIX, for a secure migration path. For businesses who are migrating from ULTRIX to DEC OSF/1, Digital offers a comprehensive migration guide and a portfolio of migration services.

DEC OSF/1 IS A LONG-LASTING UNIX.

An operating system rooted in yesterday's computing technologies cannot easily support current and future computing trends and demands. That's why we're

DEC OSF/1: The very best of UNIX.

offering DEC OSF/1 on our 64-bit Alpha AXP systems. Based on Digital's revolutionary Alpha RISC technology, Alpha AXP is firmly at the centre, not just of Digital's computing strategies, but of thousands of software houses throughout the world.

At the same time, we're protecting your existing open-systems investment by maintaining current architectures.

DEC OSF/1 IS A COMPLETE UNIX.

With DEC OSF/1, the restrictions found in traditional UNIX systems — some of which are 20 years old — have been eliminated. You get a modern UNIX kernel that has enabling features and functionality to deliver the sophistication you want today — and will want tomorrow.

Now in its third release, DEC OSF/1 is a complete UNIX computing environment supporting everything you need to run and manage your distributed environment. It is an industrial-strength, robust and proven implementation of OSF/1.

Any way you look at it, DEC OSF/1 has the features. And the future.

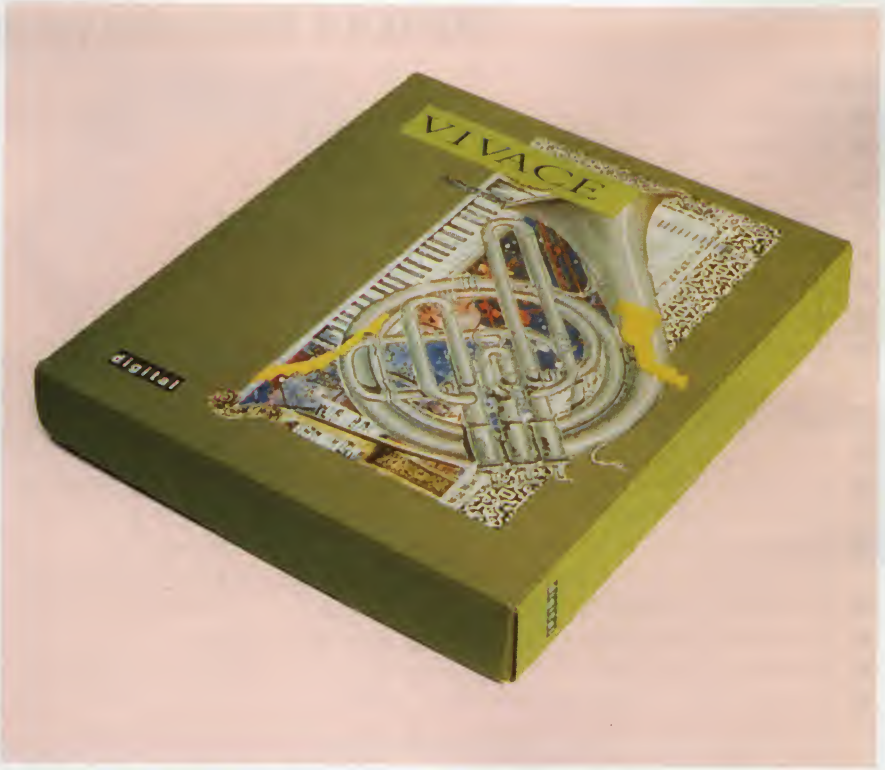
Vivace for Windows

NOT AVAILABLE IN BENELUX

A FRIENDLIER, MORE LOGICAL DESKTOP

Vivace is a powerful desktop organiser that takes over where Microsoft Windows leaves off, giving you new levels of ease and friendliness.

- Runs on top of Microsoft Windows to give you faster, more efficient management of your desktop environment.
- Simple point-click-drag actions replace time-consuming file launching, management and printing functions.
- Adds powerful document management and tracking functions to your Windows environment.



A friendlier, more productive environment

Vivace simplifies your desktop so that you can work on your computer the way you work at your desk. It takes the graphical user interface of Windows an important, logical step further, replacing many time-consuming Windows functions with more intuitive, easier-to-use actions.

For example, when you see a document that you want to open, just click twice and Vivace automatically launches the application for you, taking you directly into the document. Want to print a document? Just drag it to the Printer icon, and Vivace takes care of the rest for you. The same point-click-drag principle speeds up and simplifies operations such as Create, Open, Delete, Move, Copy, Rename and Retrieve.

File management made simple

Vivace adds a host of useful document management features to your Windows environment. For example, Vivace records information about every document that is created, including the document creator's name, the creation date, the date it was last modified and by whom, and the full DOS pathname. You can even choose a new icon to represent the document.

Ever wondered which version of a file is the one you want? Vivace solves that problem once and for all: you can give your documents meaningful names up to 24 characters long, and add individual descriptions up to 60 characters long... a welcome extension to the 8-character limitation of DOS and Windows. Vivace also makes it easy to rename your DOS files in ways that make sense. For example, you can rename a DOS file called "Forecast.wks" to the far more logical "1992 Forecast by Quarter".

Vivace works the way you do

Vivace lets you file things just the way you do in your office: in filing cabinets, with drawers and folders arranged by subject. It's the only desktop manager that gives you six levels of hierarchical filing, so you can bring new order to the way your documents are organised. For example, you can group documents together by topic, instead of by application. And that means you can keep everything related to a topic — budgets, plans, presentations, memos and so on — conveniently in a single place. You can leave such documents on your desktop for easy access; Vivace will automatically clear up after you've finished, returning the documents to the folders or drawers in which they belong. Vivace also automatically archives all documents.

Easy to use and install

When it comes to speed and ease of use, you won't find a desktop organiser to beat Vivace. One diskette and about ten minutes is all it takes to load Vivace and start working in a more natural desktop environment. Once installed, you'll find it supports over a thousand popular DOS, OS/2 and Windows applications, and all popular network operating systems (including Digital PATHWORKS, Novell NetWare, Banyan VINES, and Microsoft LAN Manager).

Vivace requires only 1MB of extended memory and 1.5MB of free disk space (some desktop managers require up to 10MB free disk space). Naturally, you'll need Microsoft Windows V3.0 or higher, and MS-DOS V3.3 or higher, running on a fully IBM-compatible 80286, 80386 or 80486 PC or PS/2.

Order Vivace today — and bring real productivity to your desktop!

Vivace for Windows V1.0

CONOLD — CONDIST — 14 DAYS ✓

LIC. & MED.	**QB-MQGEA-SA**
LICENCE	**QL-MQGEW-AA**
MEDIA	**QA-MQGEA-HB**

Required Software: MS-DOS V3.3 or higher, Windows V3.0 or higher. **Required Hardware:** Fully IBM compatible 286, 386, 486 PC, or PS/2; at least 1MB RAM; 40MB hard disk with 1.5MB of free space.

ULTRIX V4.3

NEW VERSION

THE PROGRAMMER-FRIENDLY OPERATING SYSTEM

ULTRIX 4.3. Here's what you get:

PLATFORM

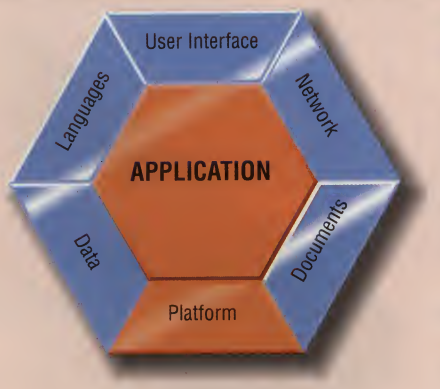
- Base UNIX operating system.
- XPG3 BASE Branding.
- POSIX IEEE 1003.1.
- SVID Issue 2, Vol. 1.
- C2 Security enhancements.
- Error logging and reporting utilities.
- Software Licence Management Facility.
- OPEN SCSI CAM V1.0 for support of latest SCSI devices

NETWORK

- TCP/IP.
- NFS (Network File System) & YP (Yellow Pages) from SUN Microsystems.
- DECrpc (Remote Procedure Call) based on NCS from Apollo.
- NTP (Network Time Protocol).
- Kerberos authentication service.
- BIND/HESIOD naming service.
- LAT terminal service (including LAT/Telnet gateway which allows LAT terminal users to connect directly to UNIX systems via Telnet).
- RIS (Remote Installation Service) allows remote UNIX installation over a LAN.
- DMS (Diskless Management Service) allows diskless systems to boot over a LAN.

USER INTERFACE

- OSF/Motif User Interface licence and media included with Worksystem.
- DECwindows User Interface.



- Multi-screen display capability on DECstation 5000 MX & CX.
- X-Windows with X11 Releases 3 & 4.
- PEX (PHIGS Extensions to X) 3D extensions to X-Server.
- Adobe Display PostScript.
- Shells — C, BSD Bourne, Korn, System V Bourne.
- Internationalisation tools based on XPG3 NLS (Native Language System) — French, German, English.

DOCUMENTS

- CDA (Compound Document Architecture) Toolkit with converters for:
  - — DDIF documents (compatible with ODA/ODIF and SGML).
  - — DTIF tabular information.
  - — Text files.
  - — PostScript output.

APPLICATIONS

- Terminal emulators — VT300, VT200, VT100 and ReGIS.
- Bookreader to view On-line Documentation.
- CDA viewer including PostScript previewer.
- Mail Interface to MH (Rand Corp.) mail handler.
- DECpaint graphics editor.
- Productivity tools (clock, calendar, calculator, notepad, etc.).
- Graphical User Account Management utility.

LANGUAGES

- pcc Optimising Portable C compiler
- DEC C ANSI standard C licence (see page 91).

DATA

- ANSI magnetic tape interchange utilities
- ISO 9660 CD-ROM Format.

DOCUMENTATION KIT CONTENTS

ULTRIX Worksystem Kit:

- UWS DECwindows User Information.
- ULTRIX General Information.
- ULTRIX System and Network Management.

The ULTRIX Operating System is Digital's implementation of the portable UNIX operating environment for Digital processors and workstations. ULTRIX is derived from Berkeley Standard Distribution (BSD) and it complies with AT&T's System V Interface Definition, Issue 2, Volume 1. It includes 200 of the most popular utilities and commands from both of these UNIX software systems. ULTRIX is X/Open XPG3 base branded and runs on Digital's family of VAX and RISC processors.

New for V4.3

The ULTRIX and UWS (ULTRIX Worksystem Software) release V4.3 contains over 250 system enhancements, supports the I/O Performance Enhancer and includes DECthreads in the base kit. DECwindows for OSF/Motif V1.1.3 and OPEN SCSI CAM V1.0 for ULTRIX/RISC are now a permanent part of the ULTRIX/UWS kit; you no longer need purchase additional media kits.

The I/O Performance Enhancer has been shown to improve local I/O performance (through the file system) by 100 percent to 400 percent on writes, and 20 percent to 50 percent on reads.

Users of ULTRIX V4.2 or later will be pleased to know that they can take advantage of the new V4.3 environment without undertaking a full installation. The system has been enhanced so that users only need to upgrade, with relative ease, from the previous version. If you are not under warranty or do not have an Update Service contract (e.g. SUSL) for ULTRIX you will need to purchase an Update Licence when moving from a previous version of ULTRIX to V4.3.

OSF/Motif

OSF/Motif is the Open Software Foundation's (OSF) specification for an open graphical user interface and its associated Application Programming Interface (API). The licence and media to use Motif is included with the ULTRIX Worksystem kit for the DECstation.

Motif enables users of workstations, mainframes, and PCs to take advantage of a consistent screen appearance and behaviour for applications running on any system which can support the X Window System Version 11, Release 3 and 4.

Supporting more users

All DECstations come with 2-user licences included. DECsystems 5000, 3100, 5100, 5400 and 5500 include 4-user licences, and DECsystems 58x0 include 16-user licences. Upgrades are available between specified user counts.

DECsystem (ULTRIX RISC Timesharing) Options SPD 26.40 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

Upgrades	Licence	Price
ULTRIX/RISC 5-8 User Upgrade	QL-VYVA8-B8	
ULTRIX/RISC 9-16 User Upgrade	QL-VYVA8-B6	
ULTRIX/RISC 33-64 User Upgrade	QL-VYVA8-BT	
ULTRIX/RISC 65-Unlimited User Ugr	QL-VYVA8-B9	

ULTRIX/RISC Media Kits	Media	Price
ULTRIX/RISC DECsystem	QA-VYVAA-H5	(TK50)
ULTRIX/RISC DECsystem	QA-VYVAA-H8	(CD-ROM)

X/Open BASE XPG3

Documentation for ULTRIX

Extra		Supplemental to ULTRIX Worksystem	
ULTRIX Full	QA-VEYAA-GZ*	Software Tools	QA-VEYAB-GZ
ULTRIX Worksystem	QA-0JQAA-GZ**	XUI Development	QA-0JQAE-GZ

*Contained in QA-VYVAA-H5 and QA-VEYAA-H5. **Contained in QA-VV1AA-H5.

DECstation 2100, 3100, 5000 Options SPD 28.22 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

For Starters	Licence	Price
DECstation includes 2 users		
Upgrades	**Licence**	**Price**
ULTRIX/RISC 3-8 User	QL-VV1A8-B5	
ULTRIX/RISC 9-16 User	QL-VV1A8-B6	
ULTRIX/RISC 17-32 User	QL-VV1A8-BS	
ULTRIX/RISC 33-64 User	QL-VV1A8-BT	
ULTRIX/RISC 65-Unlimited User	QL-VV1A8-B9	
ULTRIX/RISC Server Licence	QL-YL5AA-AA	

Media Kits	Price
ULTRIX Worksystem	QA-VV1AA-H5
ULTRIX Worksystem	QA-VV1AA-H8
Docs	
ULTRIX Documentaion	QA-0JQAA-GZ

Stop Press – WorkSystem Media now contains OSF/Motif media.

ULTRIX Disk Shadowing

DATA SECURITY FOR ULTRIX SYSTEMS

ULTRIX Disk Shadowing software provides high data availability by protecting against loss of data through media deterioration, communication path failure, or controller or device failure.

- Provides high availability by preventing single point of failure at disk and controller level.
- Gives ULTRIX-based solutions the ruggedness required in mission-critical applications.
- Supports RISC and VAX hardware architectures.

ULTRIX Disk Shadowing software provides high data availability by maintaining multiple copies of the same data on up to a maximum of three sets of disks. The software consists of a device driver and a set of utilities. The device driver part of the software ensures that higher-level software continues to 'see' the disk shadowing system as a normal disk; no modification to your applications is necessary. Utilities help you manage the shadowing devices.

Disk Shadowing for RISC V1.1 3U SPD 34.27 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

U/R	A	C	N	S	2	3	4	D
QL-GMPA								-AA

EXTRA DOCUMENTATION SETS

DOCS **QA-GMPAA-GZ**

MEDIA AND DOCS — TK50 5 Tape M

MEDIA **QA-GMPAA-H**

ULTRIX Networking Options

POWER PLUS FLEXIBILITY

DECnet/OSI for ULTRIX software is the implementation of Phase V for both OSI and DECnet protocols for Digital's ULTRIX operating system. DECnet/OSI for ULTRIX software provides support for multi-vendor connectivity and larger networks.

DECnet/OSI for ULTRIX software also provides backwards compatibility with DECnet Phase IV implementations, transition tools (for moving from Phase IV to Phase V), and an integrated naming service for object names and address resolution. In addition, DECnet/OSI for ULTRIX XTI (X-Open Transport Interface) has been expanded to allow software developers and applications to utilise multiple network transport protocols through a single interface.

- **Key functions: DEC Distributed Name Service (DECdns); DEC Distributed Time Service (DECdts); and File Transfer, Access, and Management (FTAM).**
- **Optional functions: X.25 Gateway Client and WAN Device Drivers.**

DECdns

The DECdns service provides a consistent, accessible directory of network resources and makes it possible to use a resource without knowing its physical location in the network.

DECdts

The DECdts service provides a well-integrated means of synchronising time among distributed systems. It permits the co-ordination of distributed computing functions such as name-service operations, event logging, error recovery, and distributed applications. Such functions need synchronised time to ascertain the order of events, compute the interval between two time readings, and schedule events.

FTAM

The File Transfer, Access, and Management (FTAM) feature permits access to files on other systems running FTAM.

X.25 Gateway Client

X.25 Gateway Client provides access to an X.25 network through an X.25 gateway or VMS connector node.

New with DECnet/OSI V5.1

With the release of DECnet/OSI for ULTRIX V5.1, new OSI capabilities have been added:

- US GOSIP V1.0 and UK GOSIP V3.1 compliance.
- The Virtual Terminal protocol (VT) — users can now access remote systems and applications from other vendors' hardware.
- Inclusion of Internet RFC 1006 gives the ability to run OSI applications over TCP/IP networks.

DECnet/OSI for ULTRIX is now available in two licensing forms: End System and Extended Function. The End System licence provides a base set of DECnet and OSI protocols and services — FTAM, VT, RFC1006, WAN Device Drivers, X.25 access, DECdts and local naming option.

The Extended Function licence provides all of the End System protocols and services, plus FTAM-FTP gateway, VT gateways (VT/TELNET, VT/CTERM, LAT/VT) and the DECdns server.

DECnet/OSI is not bundled with any of our systems, and can be purchased using the panel information on this page.

NOTE: If you prefer to remain at Phase IV, order the recent release DECnet-ULTRIX V4.2 (with UPI YT9), which is the last Phase IV version. Because both the V5.1 and V4.2 products have the same part number, please specify the version number you want to receive: for example, DECnet-ULTRIX V4.2.

X.25 Gateway Client V1.0 and WAN Device Drivers V2.0 licences are included in DECnet/OSI for ULTRIX. However, both media kits need to be purchased separately.

X.25 Gateway Client RISC V1.1a SPD 32.34
CONOLD ✓ CONDIST ✓ 14 DAYS ✓

LICENCE	Included in DECnet/OSI for ULTRIX	
MEDIA	**QA-YTAAA-HM**	(Tape)
or	**QA-YTAAA-H5**	(TK50)
DOCS	**QA-YTAAA-GZ**	

Required Software: ULTRIX V4.2 – V4.2a, DECnet ULTRIX V4.2.

DEC WAN Device Dvrs ULTRIX V2.1a SPD 32.33
CONOLD ✓ CONDIST ✓ 14 DAYS ✓

LICENCE	**QL-YMJA8-AA**	
MEDIA	**QA-YMJAA-HM**	(Tape)
or	**QA-YMJAA-H5**	(TK50)
DOCS	**QA-YMJAA-GZ**	

Required Software: ULTRIX V4.2 – V4.3. N.B. Licence also included in DECnet/OSI.

DECnet/OSI for ULTRIX RISC Extended Function V5.1 30 SPD 34.97 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

U/R A C N S 2 3 4 D
QL-YT9A [ ] -AA

EXTRA DOCUMENTATION SETS
DOCS **QA-YT9AA-GZ**

MEDIA AND DOCS TK50 5 Tape M
MEDIA **QA-YT9AA-H** [ ]

Required Software: ULTRIX V4.2.a

DECnet/OSI for ULTRIX RISC End System V5.1 30 SPD 34.97 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

U/R A C N S 2 3 4 D
QL-MTNA [ ] -AA

EXTRA DOCUMENTATION SETS
DOCS **QA-YT9AA-GZ**

MEDIA AND DOCS TK50 5 Tape M
MEDIA **QA-YT9AA-H** [ ]

Required Software: ULTRIX V4.2.a

ULTRIX Terminal & Printer Connections

EASY CONNECTIONS

DECservers

The preferred way of connecting terminals to any Digital ULTRIX or VMS host is by use of a DECserver terminal server. Sitting on the Ethernet and loaded from any ULTRIX or VMS load host, these devices allow users to connect to any machine on the local area network. Host machines also benefit from a reduction in interrupt traffic, by use of the Local Area Terminal (LAT) protocol; this is a licensable technology if you wish to build your own LAT-compliant devices.

In addition to terminals, Digital printers with a serial line interface can also be connected to a terminal server. This is achieved using 'reverse LAT', allowing multiple hosts to connect to a terminal server-based print service. Digital terminal servers now have licences included in the hardware package; only a media kit is required to get them running. The parts you may need are shown in the adjacent price panels.

The DECserver 300 V2.1 Load Host includes TCP/IP Telnet support allowing you to connect either via LAT or Telnet. New with V2.1 is local command line recall.

DECserver 90TL

The new DECserver 90TL is part of Digital's Smart Hub product set, and is an 8-port replacement for the DECserver 300, offering LAT and Telnet. Unlike some Smart Hub components, the DECserver 90TL requires a software load host.

As well as ULTRIX and Digital systems load host support, the DECserver 90TL can be down loaded from systems such as SunOS, OSF/1, AIX, SCO, and HP-UX using the DECserver 90TL for UNIX.

MUXservers

MUXservers offer the same range of services as Digital's terminal servers, but permit the connection of remote terminals, via a multiplexor.

DECserver 90TL for ULTRIX V1.1 SPD 38.71
CONOLD ✓ CONDIST ✓ 14 DAYS ✓

MEDIA	QA-MJPAB-H5	(TK50)
or	QA-MJPAB-HM	(Tape)

DECserver-200 ULTRIX Load Host V3.1 SPD 27.54
CONOLD — CONDIST ✓ 14 DAYS ✓

MEDIA	QA-VDEAA-H5	(TK50)
or	QA-VDEAA-HM	(Tape)

DECserver 250 ULTRIX Load Host V2.0 SPD 38.07
CONOLD — CONDIST ✓ 14 DAYS ✓

MEDIA	QA-VTNAA-H5	(TK50)
or	QA-VTNAA-HM	(Tape)

DECserver-300 ULTRIX Load Host V2.1 SPD 25..J2
CONOLD — CONDIST ✓ 14 DAYS ✓

MEDIA	QA-VTVAA-H5	(TK50)
or	QA-VTVAA-HM	(Tape)

DECserver-550 ULTRIX Load Host V2.1 SPD 33.54
CONOLD — CONDIST ✓ 14 DAYS ✓

MEDIA	QA-03KAC-H5	(TK50)
or	QA-03KAC-HM	(Tape)

DECserver-700 for ULTRIX V1.1 SPD 38.73
CONOLD ✓ CONDIST ✓ 14 DAYS ✓

MEDIA	QA-XA5AB-H5	(TK50)
or	QA-XA5AB-HM	(Tape)

MUXserver 300 V1.3 SPD 25.F1
CONOLD — CONDIST ✓ 14 DAYS ✓

LICENCE	QL-VZHA9-AA	
MEDIA	QA-VZHAA-H5	(TK50)
or	QA-VZHAA-HM	(Tape)

PrintServers for ULTRIX, Sun and UNIX

SOFTWARE FOR SHARING

Digital's PrintServer family of networked laser printers are the industry leaders for shared printing facilities. With earlier versions of the PrintServer software, you needed to dedicate the PrintServer hardware to either DECnet or TCP/IP protocol. Version V4.1 changes that by supporting shared direct access to a PrintServer from OpenVMS DECnet, ULTRIX DECnet, ULTRIX TCP/IP and/or UNIX TCP/IP — simultaneously.

Flexibility is further increased with the release of the PrintServer Software for Sun SPARC and a PrintServer Source Kit for BSD-UNIX. Now you no longer need other Digital hardware on site to use this powerful PostScript laser printer.

The intelligence resident in a PrintServer is

A licence for this software is included with the appropriate PrintServer hardware. For the client software, both the DECnet and TCP/IP PrintServer Client for ULTRIX are included with ULTRIX V4.0 and later.

A combined source code and licence kit is available if you wish to have printing capabilities for a non-Digital Berkeley host — with no other Digital host present (the BSD-UNIX kit is part number QB-YURAA-E* , where * is the media… 5 for TK50, 8 for CD-ROM, 9 for QIC24, M for MagTape). For those with Sun SPARC hardware, there is dedicated executable software media and licence available.

PrintServer for Sun SPARC V4.1 SPD: 42.21
CONOLD — CONDIST — 14 DAYS ✓

LICENCE	QL-NB6A9-AA	
MEDIA	QA-NB6AA-H5	(TK50)
or	QA-NB6AA-HM	(Tape)

Required Software: SunOS operating system. Please ring for SPD version details.

PrintServer ULTRIX Host V4.1 SPD: 30.85
CONOLD ✓ CONDIST ✓ 14 DAYS ✓

MEDIA	QA-VVZAA-H5	(TK50)
or	QA-VVZAA-HM	(Tape)

Required Software: ULTRIX operating system. Please ring for

SCO UNIX

OPENING UP YOUR UNIX OPTIONS

Digital has extended its range of UNIX based solutions to include the market-leading Santa Cruz Operation range of products. These products enable you to run industry-standard UNIX on any Intel 80486 Digital Personal Computer, including DEC PCs 425, 433, 433W, 400ST machines and the application DEC 433 MP and 400 XP.

SCO Open Desktop for PC systems

SCO Open Desktop turns the above machines into fully-fledged UNIX graphical workstations and server systems. It combines a graphical user interface and full 32-bit, multi-tasking computing power with transparent networking and complete DOS-UNIX System integration.

SCO Open Desktop — Personal System

A powerful standard solution for single-user environments including business and technical workstations.

- Integrated system services — UNIX system, GUI networking, and MS-DOS.
- Runs MS-DOS, XENIX, UNIX System and X Window based applications to leverage existing investments in hardware and software as well as providing flexible connectivity, data exchange and resource sharing.
- OSF/Motif and the X Window System provide support for multiple local and remote applications in windows. This easy-to-learn and use interface and networked window system increases user productivity and corporate computing efficiency.
- Allows integration of a wide range of SQL databases.
- Supports international, government and de facto standards.

SCO Open Desktop — Server System

A multi-user version of the SCO Open Desktop operating system forming a powerful open system server.

- Full multi-user server licence for simultaneous access to any or all system services to allow multiple users to simultaneously access any or all of SCO Open Desktop's resources for cost-effective, highly productive graphical workgroup computing solutions.
- The multiple networking feature allows multiple logins from remote systems.

Digital's family of SCO UNIX machines.

SCO Open Desktop — Development System

A complete application development environment including standard APIs and tools for each system service.

SCO UNIX System V

SCO UNIX System V is the industry-standard multi-user multi-tasking operating system for microcomputers. SCO UNIX System V is a robust implementation of AT&T UNIX System V for Intel-based PCs and is the proven standard for multi-user computing.

- For 486 based Digital computers supporting ISA, EISA and MCA.
- X/OPEN XPG3 branded.
- Tailorable C2 Security systems to detect and prevent unauthorised access to system or use of system resources.
- A simplified, menu-driven system administration is provided for easy installation and configuration.
- Long filenames.
- Built-in uucp communications and electronic mail facilities.
- Symbolic links.
- SCO XENIX 286 and 386 binary compatibility provides an easy upward-migration path.

The following products can be added:-

SCO UNIX System V Development System

Provides a full array of development tools, including state-of-the-art compilers, debuggers and device drivers.

- Codeview, an interactive source-code debugger.
- OS/2 and MS-DOS cross-development tools.
- ANSI X3J11 and X/Open conforming routines for developers of 8-bit applications.

SCO Merge allows multiple MS-DOS applications to run concurrently with UNIX processes in a fully paged, virtual memory environment.

- Invoke DOS applications from SCO UNIX and SCO UNIX applications from DOS.
- Run MS-DOS programs as background tasks.
- Applications can share MS-DOS and SCO UNIX files.
- Includes MS-DOS 5.0 and GW-BASIC.
- Development system for device driver support.

SCO Networking and Communications Products

SCO TCP/IP provides high-performance Ethernet network connections to a wide variety of operating systems and computers.

- Industry standard.
- Allows remote printing and remote logon to other systems.
- Network support for X-Window System based workstations.
- Meets BSD 4.3 standards.
- Supports a wide range of Ethernet and Token Ring controllers (please call for latest information on EtherWORKS cards).

SCO UNIX *(continued)*

- Wide area serial connectivity is provided by SLIP and PPP.
- Co-residence with other SCO protocols.

SCO NFS provides file-sharing connections across a TCP/IP LAN, allowing users on one machine to transparently and directly access files residing on a remote machine. SCO NFS features both client and server functionality. It requires SCO TCP/IP to run. Also supported are NIS, Automonter and RPC.

DECnet for SCO

DECnet for SCO integrates SCO UNIX into Digital's networking environment, and offer functions such as dlogin, VT100 emulation, Mail, NFT, FAL and MOP Downline load capability.

SCO UNIX Ordering Guide — **CONOLD** — **CONDIST** — **14 DAYS** ✓

Description	**SCO UNIX 2 User***	**SCO UNIX Multi-User**
3.5" MEDIA	QB-YN2EW-VA	QB-YN2EW-VB
QIC TAPE	QB-YN2EW-VD	QB-YN2EW-VE
Description	**SCO Open Desktop Personal System**	**SCO Open Desktop Server System**
3.5" MEDIA	QB-YN8EW-VA	QB-GN2EW-VA
QIC TAPE	QB-YN8EW-VB	QB-GN2EW-VB
Options		**for SCO UNIX** / **for SCO Open Desktop**
DECnet for SCO Licence	QL-GJ7AW-AA	
DECnet for SCO RX23 Media	QA-GJ7AA-HC	
SCO TCP/IP Runtime 3.5" Media	QB-YN7EW-VA	
SCO TCP/IP Development 3.5" Media	QB-GF2EW-VA	
SCO NFS**	QB-GF3EW-VA	
SCO UNIX Development 3.5" Media	QB-GF1EW-VA	**N/A**
Open Desktop Development 3.5"	QB-GF5EW-VA	**N/A**
Open Desktop Development QIC	QB-GF5EW-VB	**N/A**
Open Desktop Server Supplement 3.5"	QB-GF4EW-VA	**N/A**
Open Desktop Server Supplement QIC	QB-GF4EW-VB	**N/A**
SCO Merge 2 Session	QB-0D4EA-VA	**Included**
SCO Merge Multi Session	QB-0D4EA-VB	**Included**
SCO MPX	QB-YNBEW-VA	

* Please Note: there is no upgrade from 2 User to Multi-User. ** SCO NFS requires SCO TCP/IP Runtime

DEC SoftPC

NEW VERSION

IBM PC EMULATION FOR VMS AND ULTRIX

The SoftPC family of products enables you to run PC applications on any VAX or RISC processor. Features include:-

- **SoftPC emulates IBM AT hardware running DOS version 3.3.**
- **Workstation users get VGA and Super VGA video capability.**
- **Read/Write MS-DOS format floppies on a VAX or RISC drive.**
- **New! Supports protected mode, extended and expanded memory.**
- **Multiple PCs running on one workstation.**
- **New! Supports Windows 3.1**

The SoftPC software is a layered product running on top of either VMS or ULTRIX. It provides the same functionality as an IBM AT personal computer. The screen type provided depends upon the machine on which the output is displayed. For example, if you run SoftPC on a VAX 6000 you could use a VT320 terminal to display the output — this would give you only text. However, you could also display the output using DECwindows onto a workstation, giving you full EGA graphics capability.

Nearly all Industry Standard MS-DOS applications will run on SoftPC, as long as no special hardware or copy-protected disk is required. (Because the hardware as well as operating system is emulated, even programs with direct BIOS calls will probably work.)

Just as in a real AT, you can use locally attached 3.5" or 5.25" floppy drives to read and write MS-DOS format discs. Local system serial ports can be used as COM1 to COM4. LPT printer devices can be mapped onto local ports or spooled devices. Now supports Microsoft CD extensions and reads ISO 9660 CDs.

The memory available is the standard 640K as well as extended and expanded. This should be suitable for most applications.

The performance of SoftPC depends on a number of factors as well as the speed of processor upon which it executes.

A given user may operate multiple sessions of SoftPC on a workststion screen without requiring additional licence units. All other use requires one licence per session.

DEC SoftPC for VMS V4.0 — **SPD 32.18**

CONCURRENT USE LICENCE

CONOLD ✓ **CONDIST** ✓ **14 DAYS** ✓

LICENCE	**QL-YNWAA-3B**	
MEDIA	**QA-YNWAA-H5**	(TK50)
or	**QA-YNWAA-HM**	(Tape)

Required Software: VMS 5.4–2 — V5.5 with DECwindows Motif 1.1 where used. **Required Hardware:** SoftPC needs 2 MB for its working set. Any machine using DECwindows needs a minimum of 6 MB. Please note the VAXstation 35xx workstations give text based emulation only.

DEC SoftPC for RISC V4.0 — **SPD 32.17**

CONCURRENT USE LICENCE

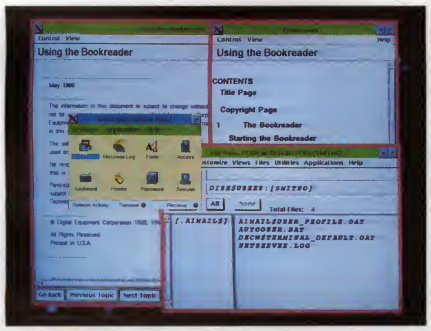
CONOLD ✓ **CONDIST** ✓ **14 DAYS** ✓

LICENCE	**QL-YP7AC-3B**	
MEDIA	**QA-YP7AA-H5/M**	(TK50)

Required Software: ULTRIX/RISC V4.2a.

eXcursion for Windows

THE BEST OF BOTH WORLDS



Microsoft Windows PC users can now expand their choice of software tools to include X applications. eXcursion software provides access to X window applications from Microsoft Windows. Key features of this powerful new software include:

- **Fully integrated Microsoft Windows based X display server.**
- **Supports DECnet and selected third-party TCP/IP stacks.**

Microsoft Windows is quickly becoming the standard interface for PC users, while Motif is the standard graphic user interface for X window applications. The eXcursion product enables you to bring these together on your PC, and take advantage of X applications without learning a new interface.

How it works

The eXcursion server is a full implementation of the MIT X Windows Version 11 Release 4 server. It runs as a well-behaved Microsoft Windows 3.0 application, creating windows in which remote X windows applications display graphics and receive input.

The X Server receives remote X protocol requests over the network from remote applications and translates them into Microsoft Windows 3.0 functions, which it executes on behalf of the application. In turn, it receives messages from Microsoft Windows 3.0 about events such as key presses or window movements that occur on the local workstation, translates them into X events, and delivers them to the application.

Benefits

- **Integration of two environments: Microsoft Windows and X.**
  The eXcursion product provides a unified operating environment. PC users can take advantage of X applications without learning a new interface. With the PC functioning as an X terminal, your existing investment in equipment is maximised.
- **Access to multiple hosts using DECnet or TCP/IP**
  PC users can access a variety of X applications running on different hosts and even different operating systems.
- **Centralised system management and expanded security when running X applications**
- **Easy transfer of data**
  Permits cutting and pasting of text and data between X windows and Microsoft Windows. Additionally, permits cutting and pasting of graphical data from X windows to Microsoft Windows... and facilitates data sharing throughout the enterprise.

Communications Support

Digital provides support for the following communication transports:

Transport Stack	PC Software Required
DECnet	PATHWORKS for DOS
TCP/IP	PATHWORKS for DOS (TCP/IP)
FTP TCP/IP	FTP PC/TCP

The eXcursion server provides automatic application startup through the use of icons, thus ensuring ease of use. An extensive library of fonts is supported: OPEN LOOK, MIT, and DECwindows.

eXcursion for Windows V1.1a			SPD 37.43
CONOLD	—	CONDIST	— 14 DAYS ✓
LICENCE	QL-MG7AG-2B		(Licence only)

Required Software: Microsoft Windows V3.0. Communication software PATHWORKS for DOS V4.0 or later PATHWORKS for DOS (TCP/IP) V1.2 or later, FTP's PC/TCP V2.05 or later. 3com TCP V1.2 or later.

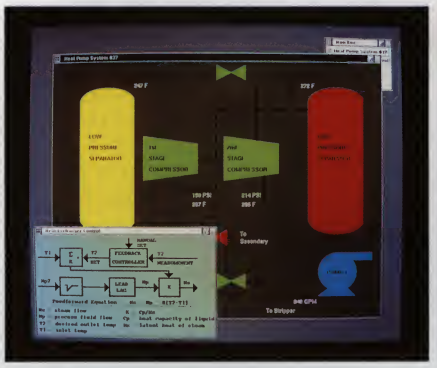
VAXELN Window Server

X WINDOW TERMINAL FROM YOUR VAXSTATION

VAXELN Window Server (EWS) is a VMS layered product that loads a DECwindows kernel onto a VT1300 or target VAXstation over Ethernet to provide X Window terminal functionality.

EWS consists of VAXELN system images and VMS DCL command files to set up an environment in which a host VMS system provides DECwindows client services for Digital workstations and VT1300 terminals. The VMS system operates as a boot server, downline loading the appropriate VAXELN Window Server system images to the workstations and VT1300 terminals. The VMS system and the workstation or terminal then operate as an integrated VMS DECwindows workstation.

The VAXELN Window Server (EWS) software provides a DECwindows capability solution for diskless workstations and,



depending on the configuration, can greatly improve windowing performance.

Communication between the boot server node and the workstation or VT1300 terminal is DECnet, TCP/IP, or both.

VAXELN Window Server for VMS V1.2			SPD 33.69
CONOLD	—	CONDIST	— 14 DAYS ✓
LICENCE	QL-YWRAR-AA		VS2000
or	QL-YWRAQ-AA		VSII
or	QL-YWRAC-AA		VS3xxx,VS8000
MEDIA	QA-YWRAA-H5		(TK50)
or	QA-YWRAA-HM		(Tape)
DOCS	QA-YWRAA-GZ		

Required Software: VMS V5.3 - V5.5 , DECnet.
Required Hardware: VT1300. Target VAXstation 2000, II/GPX or 3xxx with a minimum of 6MB of memory.

DECwindows Motif

THE INDUSTRY STANDARD GUI

With the creation of the Open Software Foundation (OSF) in May '88 came a major initiative to create a standards-based user interface based upon the best technology available in the industry at that time.

The primary criteria in establishing the user interface that was to become known as Motif were:

- **Technical excellence.**
- **Compliance with industry standards.**
- **Workability in heterogeneous environments.**

The OSF process involves technology submissions from member companies. As a result, some of the best technology from several companies has made its way into Motif; Digital tendered its Toolkit widget, User Interface Language (UIL) and Window Manager.

OSF/Motif Release 1.1 became available in August 1990, combining the features of Release 1.0 with enhancements in appearance, geometry management, and compliance with X11 R4 intrinsics.

DECwindows Motif provides you with a fully OSF/Motif compliant user environment, as well as containing the current DECwindows X User Interface (XUI). Digital has made the decision to separate the DECwindows environment from the VMS Operating System. This will enable us to provide you with newer technology in standard windowing capabilities, without waiting for a release of VMS. VMS V5.5 is the last release of VMS which will include DECwindows XUI. As of the next release of VMS, DECwindows Motif will be the only product containing the current DECwindows XUI functionality. You should be sure you have DECwindows Motif (and probably update services) if you wish to use OSF/Motif or DECwindows XUI in future.

OSF/Motif components

The core components of the OSF/Motif technology include a tested API comprising a User Interface Language (UIL) and a user interface toolkit, a window manager and complete set of documentation, including style guide.

- **Application Programming Interface (API):** Includes the OSF/Motif toolkit and the User Interface Language. Motif's UIL compiler and the Mrm library facilitate the separation of the presentation characteristics of an application from its functional code.
- **Interface toolkit (Xm widget set):** The widget set is a set of building blocks from which the user interfaces are constructed.
- **Window Manager (mwm):** This offers a standard environment for manipulating application windows.
- **OSF/Motif Style Guide:** A guidebook which enables applications to have a consistent look and feel. Applications conforming to this guide have the right to use the 'OSF/Motif compliant' branding.

Benefits

- **Ease of use:** With Motif, users can quickly and easily move across applications, even systems, without the need for major re-learning.
- **Standards and innovation:** With a policy of adopting existing standards, or — where these don't exist — inventing them, we can expect OSF/Motif to continue to lead the industry as the preferred Graphical User Interface (GUI).
- **Industry presence and acceptance:** Since some of the most important companies in the IT industry are represented in OSF, this guarantees the widespread acceptance and availability of Motif across a wide range of platforms. In Europe, this acceptance has been underpinned by the European Commission's acceptance of Motif as its preferred UNIX GUI.

The products

Digital can supply the Motif interface for VMS, ULTRIX (see the ULTRIX article) and SUN based workstations. A new product called eXcursion offers launch of Motif applications from Microsoft Windows (see the eXcursion article). Further, within PATHWORKS for DOS is PC DECwindows Motif, which turns any PC into an Xserver, complete with Motif.

Associated products

DEC VUIT is an interactive WYSIWYG-style editor for building DECwindows Motif application interfaces by producing U.I.L. code. See the *COHESION and Software Development* section for more details.

Motif shows the way forward.

LinkWorks Developer's Tools for VMS is a development environment for creating, modifying and maintaining hyperapplications. Hyperapplications are applications that provide linking and navigation capabilities to Motif users through a new link menu.

DECwindows Graphical Interface Tools for VMS are widgets that provide advanced programming capabilities for developers of Motif-based applications, and include a Graphical Object Editor and a Network Editor.

DW Motif for SUN V1.1.3	SPD 38.44
PERSONAL USE LICENCE	
CONOLD — CONDIST — 14 DAYS ✓	
LICENCE	QL-XCYAJ-2B
MEDIA	QA-XCYAA-HP

Required Software: SunOS V4.1.1, and Open Windows V2.0 or V3.0 , or X11R4 (Server and Xlib)

DW Motif for VMS V1.1	3U	SPD 36.09	CONOLD ✓	CONDIST ✓	14 DAYS ✓

TR	R	Q	C	P	N	M	L	K	S	J	H	B	2	G	F	E	3	4	D	U	V	5
QL-XA1A -AA																						

USER BASED LICENCE	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS TK50 5 Tape M
PERS QL-XA1AA-2B	DOCS QA-XA1AA-GZ	MEDIA QA-XA1AA-H

Required Software: VMS V5.4 or later. Programming documentation is an optional extra QA-XA1AB-GZ.

NAS Integrated Software Products

COST-EFFECTIVE SOFTWARE

NAS Integrated Software Products are packaged sets of Digital software products that run on multiple platforms. Each set has been configured to meet the needs of different computing environments.

- **NAS software helps different vendors' computers work together. NAS software is based on open standards, which means that your company can use NAS to build open systems.**

Why you need NAS Integrated Software Products

NAS Integrated Software Products are the right answer if you need:

- Cost-effective software: This packaged software is priced at much less than the sum of its parts.
- Software to help build open systems: The software implements many of the open standards (see chart on facing page).
- Regular and timely software updates: With NAS Integrated Software Products, version upgrades are available every six months, enabling you to plan updates into a schedule.
- Ease of purchase and installation: With just a single part number, you can order the NAS package that's right for your organisation. And you can install the package with just one installation kit.
- Multi-platform support: This is built in to each NAS package: see chart for supported platforms.
- Integration of deployed systems: If you need to share information that resides on different platforms, these packages contain much of the software you need to help you achieve this.

Integrated software product environments

With NAS Integrated Software Packages, Digital has selected key runtime software components to meet the needs of four common application deployment environments:

- Workstations
- Servers for applications running in a local environment
- Servers for distributed applications
- High-availability, mission-critical systems

NAS server packages positioning

Product	Target Environment	Features	Operating System
NAS 400	High volume transaction processing & other mission critical systems.	All of the NAS 300 features PLUS TP, Performance & capacity planning disk shadowing journaling.	VAX VMS
NAS 300	Applications that totally or partially on a server system. Client/server system.	All of the features of NAS 200 PLUS Distributed database access, compound documents, forms management, application integration, Interprocess queuing and X.400 mail.	VAX VMS, RISC/ULTRIX, Alpha AXP VMS
NAS 250	Workstations operating in a distributed computing environment.	Provides client or server support. Windows services, Network transports, application access, compound documents, cluster software.	SunOS (SPARCstations) VAX VMS Alpha AXP VMS
NAS 200	Applications that run on the desktop & where users of these applications need to share files, printers & data. Includes remote system management facilities.	Networking. Print, file, data sharing for DOS, Mac, OS/2, Windows 3.1 & workstations.	VAX VMS & RISC/ULTRIX.

Documentation, upgrades and migration

Documentation for installation is included in all media kits. Complete BookReader documentation for all products comes on CD-ROM; hard-copy documentation is available, but making the move to CD-ROM will save you having to buy the additional paper documentation and is more environmentally friendly!

If you already have some of the software components of a NAS package, special upgrade prices are available which take into account software you have already purchased.

If you want to upgrade to a higher-level NAS package — say, from NAS 200 to NAS 300 — there are special upgrade prices available. Please call Digital for details.

More information

For more information on NAS or a specific NAS product, including a full list of functions and prerequisites, please ask your Digital contact for the relevant Software Product Description (SPD).

PRODUCT	CONTENT	TARGET ENVIRONMENT	STANDARDS SUPPORTED
NAS 200 – VMS Licence: QL-MC1A*-AA Media: QA-MC1AA-H5, H8 or HM SPD: 36.86. Runtime Server	DECnet – VAX End Node DECnet – VAX Ext for OSI PATHWORKS for VMS PATHWORKS for Macintosh Remote Systems Manager Client DEC TCP – IP Services for VMS	Desktop integration, sharing files, printers and data. Services for Workstations. PCs and Macintosh.	OSI TCP/IP NFS LAN Manager
NAS 300 – VMS Licence: QL-MC2A*-AA Media: QA-MC2AA-H5, HM or H8 SPD: 36.85. Runtime Server	**NAS 200 contents, plus:** ALL-IN-1 MAIL Server for VMS DEC ACA Services VMS RT DECforms Runtime system DECmessageQ for VMS Runtime VMS DECwindows Motif, Rdb Runtime Option Rdb Runtime Server for VMS CDA Runtime Services fot VMS	Distributed client/server computing. Runtime services for distributed or general host-based applications.	OSI, TCP/IP, SQL, ODA, LAN Manager, X-Windows, OMG/ORB, NFS, FIMS, Motif, X.400
NAS 400 – VMS Licence: QL-MC5A*-AA Media: QA-MC5AA-H5, HM or H8 SPD: 40.63. Runtime Server	**NAS 300 contents above, plus:** VAX ACMS RT DECtrace RT VAX RMS Journalling VAXcluster software Volume Shadowing DECps Data Collector DECnet Full FUNCTION	Transaction processing and business-critical applications, Supports performance tuning, capacity planning, disk shadowing, clustering and journalling.	OSI, TCP/IP, SQL, ODA, LAN Manager, X-Windows, OMG/ORB, NFS, FIMS, Motif, X.400
NAS 200 – ULTRIX Licence: QL-XVCA*-AA Media: QA-XVCAA-H5 or H8 SPD: 36.87. Runtime Server	PATHWORKS for ULTRIX POLYCENTER Software Distribution Manager Client DECnet/OSI for ULTRIX (END SYSTEM)	Desktop integration, sharing files, printers and data. Services for Workstations. PCs and Macintosh.	OSI TCP/IP NFS LAN Manager
NAS 300 – ULTRIX Licence: QL-XVAA*-AA Media: QA-XVAAA-H5 or H8 SPD: 36.84.	NAS 200 PLUS DEC ACA services for ULTRIX RT DECmessageQ for UNIX (Server) DECforms for ULTRIX DECmessageQ for ULTRIX (Client)	Distributed client/server computing. Runtime services for distributed or general host-based applications.	OSI TCP/IP NFS LAN Manager FIMS OMG/ORB
NAS 300 ALPHA AXP – OSF/1 Licence: QL-06RA*-AA Media: QA-06RAA-H8	Information not available at time of going to press: call Digital for details.	Distributed client/server computing. Runtime services for distributed or general host-based applications.	
NAS 300AK ALPHA AXP – VMS Licence: QL-XV9A*-AA Media: QA-03XAA-H8 SPD: 44.55.	DECwindows Motif DECnet for VMS ALPHA AXP End Node (See NB below)	Distributed client/server computing. Runtime services for distributed or general host-based applications.	OSF/Motif
NAS 2S0 – SUN Licence: QL-06HAJ-3B Media: QA-06HAA-H8 SPD: 44.31. Runtime server or client	DECwindows Motif ACA Services Runtime CDA Services Runtime	Allows SUN workstations to fully integrate into a client/server or distributed environment.	OSF/Motif OMG/ORB ODA
NAS 250 – VMS Licence: QL-XVD*-AA Media: QA-XVDAA-H8 SPD: 36.89. Runtime client	DECnet-VAX End node DECnet VAX extensions Rdb/VMS Runtime DEC TCP/IP Services for VMS VAXcluster software VMS DECwindows Motif DEC ACA Services for VMS RT	Allows VAX workstations to fully integrate into a client/server or distributed environment.	OSI TCP/IP NFS SQL Motif OMG/ORB ODA
NAS 250 ALPHA AXP – OSF/1 Licence: QL-06PA*-AA Media: QA-06PAA-H8	Information not available at time of going to press: call Digital for details.	Allows ALPHA AXP-OSF/1 workstations to fully integrate into a client/server or distributed environment.	
NAS 250AK ALPHA AXP – VMS Licence: QL-XVEA*-AA Media: QA-03XAA-H8 SPD: 44.57.	DECwindows Motif DECnet for VMS Alpha AXP End Node (See NB below)	Allows ALPHA AXP-VMS workstations to fully integrate into a client/server or distributed environment.	OSF/Motif

NB: AK = advanced kits. This licence also includes licence for software functionality contained in NAS 250 and NAS 300 for VAX VMS.
Full functionality will be available in the NAS Integrated Software Products in Spring 1993.

OpenVMS OPERATING SYSTEM

HIGH-INTEGRITY FEATURES....OPEN SYSTEMS BENEFITS

OpenVMS, formerly known as VMS, is Digital's general-purpose, multi-user, multiprocessing operating system that offers unmatched flexibility. Users with VMS V5.5 already have OpenVMS as this was when the name change occured. OpenVMS provides world-class functionality, proven with over 10 million users, along with open systems benefits for those users that choose to use them. OpenVMS runs on multiple platforms, and supports multiple modes of computing. OpenVMS is uniquely qualified to help you solve an impressive number of business problems and provide a competitive advantage for your business.

Features:

- Provides both an open systems environment and a value-added, high-integrity environment.
- Complies with major open industry standard interfaces such as POSIX, OSF's DCE, and is XPG3 BASE branded.
- Conforms to more industry standards than any other non-UNIX operating system.
- Runs on both the VAX and Alpha AXP platforms.
- Offers powerful, flexible functionality to meet your particular business needs.

OpenVMS: A high-integrity operating system

OpenVMS provides a highly reliable application platform with features such as power-failure restart, batch/print restart, memory error-correction, symmetric multiprocessing (SMP), and fault-tolerant system support.

Optional software such as Cluster software, RMS Journalling, Volume Shadowing, and DECamds provides even higher levels of data, application, and system availability.

Features such as the DECdtm Distributed Transaction Manager enable transaction and data integrity for business-critical applications.

OpenVMS: An open operating system

The OpenVMS operating environment complies with IEEE POSIX and OSF's DCE and is X/Open XPG3 BASE branded. Future plans call for OpenVMS support for OSF's DME and X/Open's XPG4.

OpenVMS and Digital layered products comply with more industry standards today than any other non-UNIX operating system. Those standards include OSF Motif, SQL, FIMS, the X Window System, GKS, PHIGS, and ANSI and ISO languages.

Additional OpenVMS open features support:

- Compatibility with over 10,000 applications already available.
- Widespread networking support including DECnet/OSI, TCP/IP, X.25, and SNA.
- User-based licensing, normally available only for PC users.

OpenVMS: A secure operating system

C2-level security features are integrated into OpenVMS, and the operating system is currently going through the process of complete C2 certification. In addition, security features up to the B1 level can be obtained using OpenVMS Security Enhancement Services.

OpenVMS: An easily-managed operating system

OpenVMS provides a number of built-in features for system management, including basic user account, disk quota, performance, batch/print, and cluster management.

Optional products from Digital's POLYCENTER solution for system and network management in a multi-vendor environment include capacity planning, asset management, scheduling, and automated operations.

OpenVMS: A flexible operating system

OpenVMS supports multiple modes of computing: realtime, time-sharing, batch, transaction-processing, numerically intensive, and client/server — all in one operating system.

OpenVMS: A multi-platform operating system

The OpenVMS operating system runs on both the VAX and Alpha AXP hardware platforms.

The OpenVMS VAX family of systems, the broadest range of compatible systems in the industry, offers binary compatibility from the desktop to the data centre to the mainframe to VAXft fault-tolerant systems for applications and data.

The OpenVMS AXP family of systems brings the power of RISC computing to the OpenVMS environment. AXP systems also offer binary compatibility on a full range of systems that will span the desktop to the supercomputer.

OpenVMS AXP will, in time, offer the same features as OpenVMS VAX, enabling users and applications to easily move from one OpenVMS system to another.

The OpenVMS base operating system and a development environment are available on AXP today; additional software for OpenVMS AXP will be rolled out in a phased approach.

The benefits of clusters will be made available on OpenVMS AXP, allowing OpenVMS VAX and OpenVMS AXP systems to coexist in the same cluster.

OpenVMS AXP Operating System Licences SPD 41.87 CONOLD — CONDIST — 14 DAYS ✓

Single Interactive User QL-MT2A9-BB

ALPHA AXP System	Base Licence	Price	Unlimited Licence	Price
DEC 3000-400	QL-MT1AE-6B			
DEC 3000-400S	QL-MT1AE-6A		QL-MT2AE-6A	
DEC 3000-500	QL-MT1AG-6B			
DEC 3000-500S	QL-MT1AG-6A	N.B. Base Licence included in most systems.	QL-MT2AG-6A	
DEC 4000-610 (For each additional 4000-600 CPU)	QL-MT1AJ-6A QL-MT1A9-6C		QL-MT2AJ-6A	
DEC 7000-610 (For aach additional 7000-600 CPU)	QL-MT1AL-6A QL-MT1A9-6A		QL-MT2AL-6A	
DEC 10000-610 (For aach additional 10000-600 CPU)	QL-MT1AN-6B QL-MT1A9-6B		QL-MT2AN-6B	

OpenVMS AXP System Media and Documentation SPD 41.87 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

	Licence	Price
OpenVMS AXP Media and On-line documentation (Inc. DECnet)	QA-MT1AA-H8	
Media Update Service MDDS on CD	QT-MT1AA-E8	
OpenVMS AXP Full Documentation in hardcopy	QA-MT1AA-GZ	
Open VMS AXP Base Documentation in hardcopy	QA-MT1AB-GZ	

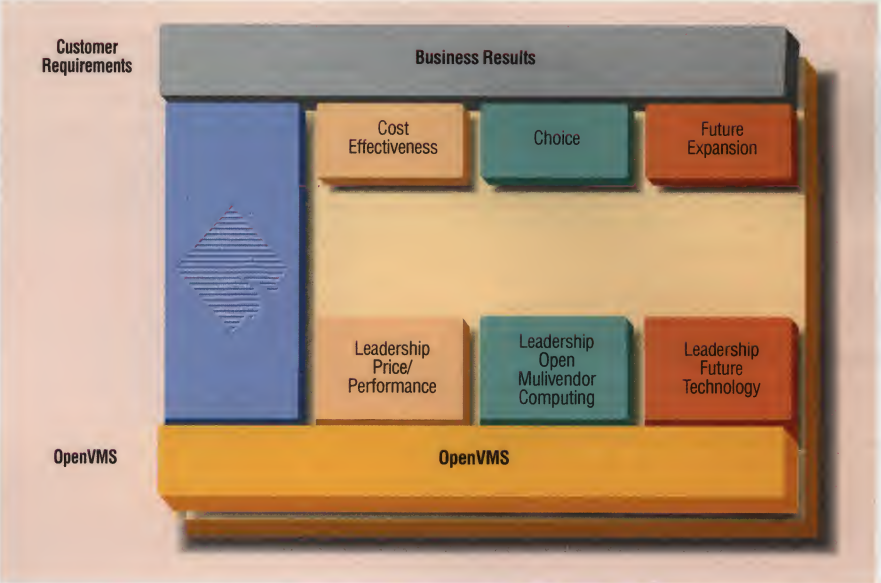
With OpenVMS systems, your existing investments are protected and the future is built in.

OpenVMS Ordering Information

Several new licensing options are available for the OpenVMS operating system. Many current and all new VAX systems, and all new AXP systems, will ship with the new OpenVMS licence type, the OpenVMS O/S Base Licence. OpenVMS Interactive User Licences can then be added in increments of one or on an unlimited basis as your business needs dictate. You buy only the number of Interactive Users you need while maintaining the option to move to Unlimited User access. Technical prerequisites for the new OpenVMS Licensing are OpenVMS VAX V5.5 and LMF V1.1 (shipped with OpenVMS V5.5), or OpenVMS AXP V1.0.

The OpenVMS Base Licence is similar to the old 'server' type licence, granting rights to use remote batch, print, application and computing services. The Base licence permits the optional addition of Interactive Users, a feature not available with the old 'server' licensing. The Base Licence can be identified by the part number beginning QL-005 for VAX and QL-MT1 for AXP.

For some new system purchases, a Base Licence is included based upon the power of the system. You can then add the number of users you need by purchasing the required quantity of the Interactive User Licensing option. These qualify for a volume discount.



OpenVMS on Alpha AXP offers real Business Benefits.

These licences qualify you for a line volume discount when you order five or more; just order the number required for each system. The licence will come as a single Product Authorisation Key (PAK) for each line item ordered. These licences are tied to a processor and a single PAK cannot be allocated across processors, so it is necessary to order separate quantities for separate nodes.

The new OpenVMS Operating System Base and OpenVMS Interactive User Licenses are supported on the following VAX and AXP systems:

MicroVAX 3100 Model 10, 40, 80, and Model 90
VAX 4000 Desktop Model 100, VAX 4000 Model 400, 500, and 600
VAX 6000 Model 510 and 610
VAX 7000 Model 6xx
VAX 10000 Model 6xx
VAXft 110, 410, 610, and 612

Alpha AXP Systems

DEC 3000-400
DEC 3000-400S
DEC 3000-500
DEC 3000-500S
DEC 4000 Model 6xx
DEC 7000 Model 6xx
DEC 10000 Model 6xx

Unlimited System Use Licences are also available on most systems.

OpenVMS Layered Applications Media and Documentation	CONOLD ✓	CONDIST ✓	14DAYS ✓
	Licence		**Price**
OpenVMS Applications and On-line documentation.	QA-03XAA-H8		
Regular Update Service CDDS	QT-03XAA-C8		

			CONOLD ✓ CONDIST ✓ 14 DAYS ✓	
Product	**User Based Licence**	**Price**	**Traditional Licence**	**Hardcopy Docs.**
DEC C	QL-015AA-2B		QL-MU7A*-AA	QA-MU7AA-GZ
DEC FMS (Dev.)	—		QL-MVSA*-AA	QA-MVSAA-GZ
DEC FMS (RT)	—		QL-MVTA*-AA	See Development
DEC FORTRAN	QL-100AA-2B		QL-MV1A*-AA	QA-MV1AA-GZ
DECmigrate	—		QL-MWMA*-AA	QA-MWMAA-GZ
DECram	—		QL-MV3A*-AA	QA-MV3AA-GZ
DECset	QL-965AA-2B		QL-MUPA*-AA	QA-MUPAA-GZ
DECwindows Motif	QL-XA1AA-2B		QL-MV4A*-AA	QA-MV4AA-GZ
DXML (Dev.)	—		QL-MUVA*-AA	QA-MUVAA-GZ
DXML (RT)	—		QL-MUWA*-AA	QA-MUWAA-GZ
DEC MACRO-64	QL-MWPAA-2B		QL-MWPA*-AA	QA-MWPAA-GZ
DECnet End Node	—		QL-MTFA*-AA	QA-MT3AE-GZ
DEC ACA Serv Dev	QL-XKAAA-2B		QL-06UA*-AA	QA-06UAA-GZ
DECforms Runtime	QL-VNSAA-3B		QL-0J9A*-AA	QA-VCHAA-GZ
DBMS Dev	N/A		QL-0H6A*-AA	QA-899AA-GZ
Rdb Development	QL-VD2AA-2B		QL-05YA*-AA	QA-VD2AB-GZ
Rdb Interactive	QL-VCLAA-2B		QL-05ZA*-AA	QA-VCLAB-GZ
Rdb Runtime	N/A		QL-063A*-AA	QA-MA4AB-GZ
DECmessageQ Dev	N/A		QL-0HJA*-AA	QA-0HJAA-GZ
PATHWORKS	N/A		Licensed at client	QA-A93AA-GZ
CDD/REPOSITORY	QL-897AA-2B		QL-0JMA*-AA	QA-0JMAA-GZ

OpenVMS V1.0 Alpha AXP Software

CD MEDIA AND ON-LINE DOCUMENTATION

All software from Digital for the AXP will be supplied on CD-ROM only. This will give you the benefit of no more shelves full of TK50 or Magnetic distribution media, plus you have full electronic documentation and the option of purchasing only what you need in hardcopy. It will also make obtaining new products much quicker; you will already have the media on site, all you will need is the licence.

The Operating System and Layered Applications come on separate sets of CDs.

OpenVMS Licensing

As befitting an open operating system, the licensing options for both OpenVMS and its applications give you plenty of choice between Unlimited/Traditional licences and, in many cases, individual User Based Licences.

For multi-processor AXPs, the base licence and number of users is bought as though for a single-processor machine. For each additional processor, a multi-processor extension licence, QL-MT1A9-6*, is purchased.

User Based Licence portability at no cost

As each OpenVMS AXP application is released, where a User Based licence already exists for a product on OpenVMS VAX, it is eligible for use on the OpenVMS AXP platform without change. This means that when upgrading from VAX to AXP, any up-to-date User Based VAX licences you have can be transferred to AXP without any additional fee to Digital. There is no need even to inform us... true long-term protection of your application investment.

Over the next months many applications will be released to run on the Alpha AXP system. As you will see from the list on the previous page, the initial releases are aimed at supporting application developers.

On-line Documentation is included on the CD-ROM for the products, but paper hardcopy format is available if required.

Also expected by the release of this catalogue are DECforms, DBMS, Rdb, DECmessageQ, RSM Client, ALL-IN-1, Message Router, PATHWORKS, CDD/Repository, DEC Ada, DQS, GKS and PHIGS.

OpenVMS V5.5 VAX Software

Comprehensive documentation is available for OpenVMS. The Extended (Large) Documentation set is organised into functional subkits. For example, all system manuals are in one subkit.

An easy-to-use desktop Base (Small) Documentation set of manuals is available for users who do not require extensive documentation.

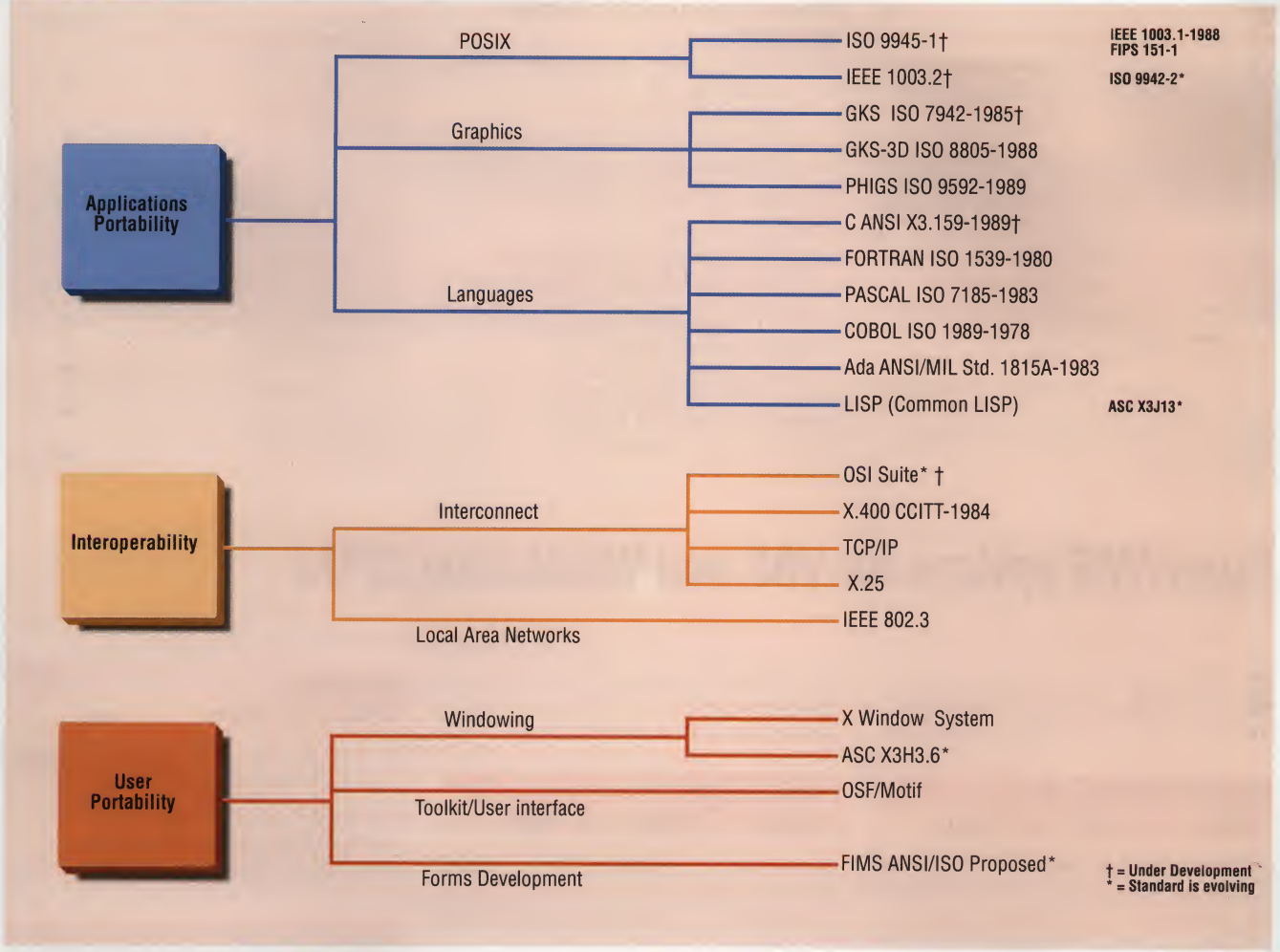
Digital recommends that users managing a high-end VAX system (for example, a VAX 8830 or VAX 9000), VAXcluster systems, or a DECnet-VAX network acquire the Software Media and Extended Documentation set. The Software Media and Base Documentation set is recommended for managers of small standalone systems for general users

Applicable VAX CPUs — **SPD 25.01** **CONOLD ✓** **CONDIST ✓** **14 DAYS ✓**

		Large Doc Set		Small Doc Set	
		Media	**Price**	**Media**	**Price**
VAXstation 3100		N/A		QA-09SAA-H5	TK50
	or:	N/A		QA-09SAA-HM	Tape
	or:	N/A		QA-09SAA-H8	CD
Desktop-VMS on CD-ROM		N/A		QA-VV8AA-H8	CD
VS2000, VSII, VS3200, VS3500,		QA-001AA-H8		QA-09SAA-H8	CD
VAXsrv3xxx, MV2000, MVII, MV3xxx	or:	QA-001AA-H5		QA-09SAA-H5	TK50
VAX 6210,VAX 6000-210, VAX 6310,	or:	QA-001AG-HM		QA-09SAG-HM	Tape
VAX 4000, 6000-310, VAXsrv 6310, VAXsrv 6320, all 6000-xxx, 6xxx					
VS3520, 3540, 4000		N/A		QA-09SAA-H8	CD
		N/A		QA-09SAA-H5	TK50
VAX 730, VAX 750		QA-001AF-HM		QA-09SAF-HM	Tape
VAX 780, 785		QA-001AE-HM		QA-09SAE-HM	Tape
VAX 86xx		QA-001AD-HM		QA-09SAD-HM	Tape
VAX 82xx, 83xx, 85xx, 8700, 8800, 8810, 8820-N		QA-001AC-HM		QA-09SAC-HM	Tape
VAX 8820, 8830, 8840		QA-001AB-HM			

OpenVMS POSIX

THE OPEN ADVANTAGE — NOW!



A cornerstone among standards is the Portable Operating System Interface (or POSIX), an operating system interface definition of a set of system services designed for consistent application portability at the source code level. POSIX was developed, not by a specific vendor, but by IEEE (Institute of Electrical and Electronic Engineers).

OpenVMS POSIX is a response from Digital as a software vendor to the industry POSIX effort. OpenVMS POSIX provides the capability on OpenVMS to develop and run applications conforming to the POSIX standards, and underscores the OpenVMS commitment to support open standards. In short, the POSIX standards serve as the functional specification for the product called OpenVMS POSIX. The right to use OpenVMS POSIX is included with the OpenVMS 5.5 licence; all that's required is the media.

X/Open BASE XPG3 branded

With this new version (V1.1) of OpenVMS POSIX, Digital has extended the product to include the X/Open BASE specifications defined in the X/Open Portability Guide Issue 3 (XPG3). X/Open is a worldwide, independent consortium of computer systems manufacturers, which has defined a portable software environment based on formal and de facto standards (including POSIX 1003.1-1988). Vendors can apply to X/Open for the right to display the X/Open BASE brand identifier showing that their product fulfils the comprehensive and stringent set of requirements.

Until now, most products which have received the coveted X/Open XPG3 BASE brand have been UNIX-based systems; Digital's ULTRIX has been branded since 1990. This led some people mistakenly to believe that the only way forward for open systems was with UNIX... not any more! Digital is proud to announce the X/Open branding of OpenVMS with OpenVMS POSIX V1.1, thus confirming our commitment to Open standards.

POSIX standards

OpenVMS POSIX includes support for the standards, plus draft standards for the system application programming interface (POSIX 1003.1), shell and utilities (1003.2), and real-time programming (1003.4). POSIX 1003.1 has been approved as a final standard. OpenVMS POSIX support for POSIX 1003.1 conforms to ISO/IEC 9945-1:1990(E), and will be FIPS 151-1 certified.

X/Open BASE XPG3

OpenVMS POSIX V1.1	SPD 34.82
CONOLD ✓ CONDIST ✓	14 DAYS ✓
LICENCE	Included in VMS
MEDIA	**QA-GXXAB-H5** (TK50)
or	**QA-GXXAB-HM** (Tape)
Inc IEEE docs	**QA-GXXAA-H5** (TK50)
Inc IEEE docs	**QA-GXXAA-HM** (Tape)

Required Software: VMS on VAX V5.5.

New OpenVMS User Based Licences

Suitable for VAX systems with OpenVMS O/S BASE licence, part number QL-005*. This applies to the systems listed as having the option of Unlimited licences and shipping since 1st July 1992.

OpenVMS INTERACTIVE 1 USER LICENCE QL-XULA9-BB

This licence qualifies you for a line volume discount when you order five or more; just order the number required for each system. The licence will come as a single PAK for each line item ordered. These licences are tied to a processor and a single PAK cannot be allocated across processors, so it is necessary to order separate quantities for separate nodes.

Unlimited User Licences and their breakpoints

With higher numbers of interactive users it may be more cost effective to buy an UNLIMITED INTERACTIVE USER licence; the table gives you the breakpoint number of users when it becomes a better buy than a multiple of the INTERACTIVE USER.

UNLIMITED USER licences are also available for the following VAX systems:

VAX 6510 - QL-XULA4-6A.
VAX 6610 - QL-XULAD-6B.
VAX 7610 - QL-XULAD-6D.
VAX 10610 - QL-XULAD-6E.
VAXft 410 - QL-XULA2-6W.
VAXft 610 - QL-XULA2-6X.

System model Unlimited Licence	Price	Breakpoint
MicroVAX 3100-10 QL-XULAP-6Z		32
MicroVAX 3100-30 QL-XULAP-6N		32
MicroVAX 3100-40 QL-XULAP-6V		32
MicroVAX 3100-80 QL-XULAP-6W		32
MicroVAX 3100-90 QL-XULAP-62		44
VAX 4000 Model 100 QL-XULAS-6A		56
VAX 4000 Model 400 QL-XULA2-6Y		109
VAX 4000 Model 500 QL-XULA4-64		192
VAX 4000 Model 600 QL-XULA4-65		192

OpenVMS options for VAX and VAXstation CPUs

Suitable for all VAX and VAXstation systems shipped before 1st July 1992, running VMS or OpenVMS. Also suitable for VAXstations currently being shipped. Systems can be identified by the existing licence part number starting QL-001.

VAX 4000-200 User Upgrade
CONOLD ✓ CONDIST ✓ 14DAYS ✓

	Licence	Price
11 to 20 Users	QL-001AB-B2	
21 to 40 Users	QL-001AB-B3	
41 to Unlimited Upgrade	QL-001AB-B4	

VAX 4000-300 User Upgrade
CONOLD ✓ CONDIST ✓ 14DAYS ✓

	Licence	Price
21 to 40 Users	QL-001A2-B3	
41 to Unlimited Users	QL-001A2-B4	
DECnet End to Full Upgrade	QL-D09A2-AA	

VAX 4000-500 and 600 User Upgrade
CONOLD ✓ CONDIST ✓ 14DAYS ✓

	Licence	Price
VMS 40 - Unlimited Users	QL-001A4-B4	
DECnet End to Full Upgrade	QL-D09A4-AA	
VAXcluster Software	QL-VBRA4-AA	

VAXstation 4000-60/VLC
CONOLD ✓ CONDIST ✓ 14DAYS ✓

	Licence	Price
DECnet End to Full Upgrade	QL-D09AC-AA	
NAS 250 Media	QA-XVDAA-H5	

MicroVAX-3100
CONOLD ✓ CONDIST ✓ 14DAYS ✓

	Licence	Price
VMS 1-5 Users	QL-001AP-BM	
VMS 3-5 Users Upgrade	QL-001AP-BR	
VMS 6-10 Users Upgrade	QL-001AP-BW	
VMS 11-15 Users Upgrade	QL-001AP-BU	
VMS 16-Unlimited Users Upgrade	QL-001AP-BV	
Media with Small Doc set	QA-09SAA-H5	
Media with Large Doc Set	QA-001AA-H5	
DECnet End Node	QL-D04AP-AA	
DECnet Full Function	QL-D05AP-AA	
DECnet End to Full Upgrade	QL-D09AP-AA	
VAXcluster Software	QL-VBRAP-AA	

VAXstation 3100 CONOLD ✓ CONDIST ✓ 14DAYS ✓

	Licence	Price	Media Kit	Price	
VMS	QL-001AC-BB		QA-09SAA-H5		(Small Doc Set)
Desktop-VMS	QL-VV8AC-BB		QA-VV8AA-H8		
VAX VWS	QL-A96AC-AA		QA-A96AA-H5		
DECnet–VAX End Node	QL-D04AC-AA		(Included in VMS)		
DECnet End to Full Upgrade	QL-D09AC-AA		(Included in VMS)		
VAXcluster Software	QL-VBRAC-AA		(Included in VMS)		

MicroVAX-II
CONOLD ✓ CONDIST ✓ 14DAYS ✓

	Licence	Price
3 to 8 Users	QL-001AN-B5	
9 to 16 Users	QL-001AN-B6	
17 to Unlimited Users	QL-001AN-B7	
DECnet End to Full Upgrade	QL-D09AN-AA	

MicroVAX-3300/3400
CONOLD ✓ CONDIST ✓ 14DAYS ✓

	Licence	Price
VMS 1-5 Users	QL-001AS-BM	
VMS 6-10 Users Upgrade	QL-001AS-BW	
VMS 11-20 Users Upgrade	QL-001AS-B2	
VMS 21-30 Users Upgrade	QL-001AS-BX	
VMS 31-Unlimited Users Upgrade	QL-001AS-BY	

MicroVAX-3500/3600/3800/3900
CONOLD ✓ CONDIST ✓ 14DAYS ✓

	Licence	Price
VMS 1-10 Users	QL-001AB-BL	
VMS 11-20 Users Upgrade	QL-001AB-B2	
VMS 21-40 Users Upgrade	QL-001AB-B3	
VMS 41-Unlimited Users Upgrade	QL-001AB-B4	

Upgrade VAXstation to 8 Users
CONOLD ✓ CONDIST ✓ 14DAYS ✓

Put 8 users on a 'C' CPU code VAXstation (e.g. 3100, 4000-60,4VLC)

	Licence	Price
VMS 2 to 8 Users Upgrade	QL-001AC-B5	

N.B. You will also need to upgrade any capacity based application licences. A ClusterWide licence will now be 20 points code 'C' and a Traditional licence code 'P'. VMS V5.5 or later is required.

VAXcluster Options

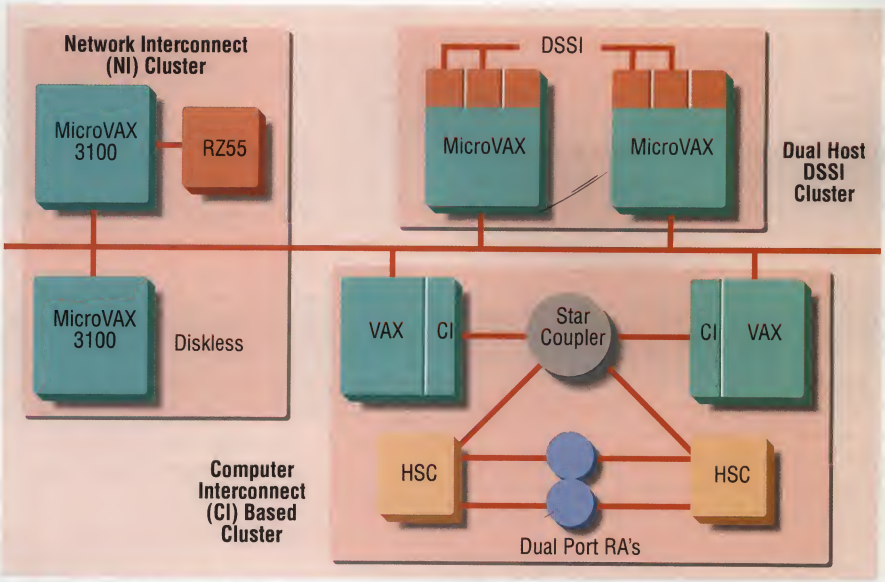
DIGITAL'S FLEXIBLE APPROACH TO ADDING COMPUTING POWER

A VAXcluster is a highly integrated configuration of several VAX computers operating together as a single VAX computer system. VAXcluster systems can contain a wide range of VAX hardware and use the same VMS operating system and application programs that run on a standalone VAX processor.

VAXclusters allow you to add processors and disk drives as your needs dictate, maintaining your current investment in capital equipment. The physical connection between VAXcluster processors can be through use of a Computer Interconnect (CI) bus for high-end machines, and/or via Ethernet.

All configurations have the following software features in common:

- Shared Disk Storage. The VMS file system allows all VAX processors in a VAXcluster to share disk mass storage, whether the disk is connected to an HSC-based Controller (on the CI-bus) or directly to an individual processor.
- Cluster-wide batch and print queues, accessible to any machine in the configuration. Jobs submitted to cluster-wide queues are routed to the least loaded system, balancing the batch load across the cluster members.
- Dynamic SHOW CLUSTER utility, displays node status, information and traffic.



This mid-range VAXcluster uses redundant disk controllers to increase database availability. To get the full benefit of VAX Volume Shadowing, add a second HSC controller to your system.

CI VAXclusters

Computer Interconnect (CI) VAXcluster systems provide users with increased data sharing, high availability and increased computing power. As many as 16 VAX processors can be combined into a single CI VAXcluster system.

Terminal Servers give VAXcluster systems a number of benefits, the most important of which is easy, transparent user access to any processor. Other advantages include:

- Dynamic load balancing across the VAXcluster for optimal resource utilisation.
- Failover from a downed processor to a functional one.
- Terminal locking for increased security.
- Multiple simultaneous terminal sessions.

Ethernet Network Interconnect (NI) VAXclusters

Ethernet-based or Network Interconnect (NI) systems enable you to integrate low-end systems and workstations into a VAXcluster environment. When configured, members of a workgroup or team can share common large disks, data and expensive peripheral devices and yet have a dedicated CPU.

The other chief advantage of NI VAXclusters is that system management is centralised including software installation, disk maintenance and backups.

DSSI and FDDI VAXclusters

VAX computers which support Digital Storage Systems Interconnect (DSSI) can use this as the means of VAXcluster interconnect, provided that access is not via a KFQSA Q-bus adapter.

Fibre Distributed Data Interface (FDDI) is the high speed (100 Mb/s) LAN standard which complements the existing IEEE 802.3/Ethernet LAN. As with Ethernet, it can be used to interconnect a VAXcluster.

Please see the DECdirect Hardware Catalogue for more information on FDDI.

Mixing it

A Mixed Interconnect VAXcluster is a combination of CI-based, DSSI, FDDI and NI-based machines in a VAXcluster configuration. Currently, a VAXcluster system can support up to 96 nodes.

For Information on Phase I and II Volume Shadowing, see the article on *Data Integrity and File System Performance.*

VAXcluster Software V5.5 30 SPD 29.78 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

TR R Q C P N M L K S J H B 2 G F E 3 4 D U V 5

QL-VBRA -AA

Required Software: VMS V5.5. DECnet-VAX software. All VAXcluster CPUs require either an End Node or Full Function DECnet-VAX Licence.

EXTRA DOCUMENTATION SETS		MEDIA AND DOCS	TK50 5 Tape M
DOCS	Included in VMS	MEDIA	Included in VMS

DECnet/OSI for OpenVMS

OPEN NETWORKING FOR AN OPEN OPERATING SYSTEM

Many vendor networks have, at their core, a proprietary implementation. Digital, on the other hand, is placing *international* standards and de-facto standard networking protocols at the core of its networking strategy. The ADVANTAGE-NETWORKS product family is delivering integrated, coexistent OSI, TCP/IP and DECnet networking protocols on *OpenVMS* and *ULTRIX* platforms. Digital's 17 years of experience integrating dissimilar operating systems is available to you in these products.

DECnet/OSI for OpenVMS is Digital's implementation of the OSI network protocols for OpenVMS users, and DECnet/OSI is Phase V of Digital's Networking Architecture. It provides connectivity with other Digital platforms and with any OSI conformant implementation, regardless of vendor. Highlights include:

- **Integration of OSI and DECnet protocols**
- **Removal of limitations on DECnet network size, by using OSI addressing**
- **Preserving connectivity to PC, IBM SNA and DECnet Phase IV environments**

DECnet/OSI adds new capabilities compared with the old DECnet-VAX. These capabilities provide an OSI End System stack and DECnet enhancements that include:

- The use of the VAX Distributed Name Service (DECdns) namespace to hold the network node names and addresses, plus the use of the Digital Distributed Time Service (DECdts).
- Phase V management of the OSI lower layers and remote Phase V systems, multiprotocol routers, and gateways.

This release provides a transition path to Phase V and enhances the OSI support of DECnet-VAX by providing capabilities required for the Government OSI Profiles (GOSIPs).

The OSI components included in this release are:

- FTAM (File Transfer, Access and Management), VT (Virtual Terminal), and ACSE
- OSI Presentation and Session layers
- Transport (VAX OSI Transport Service — VOTS)
- X.25 VAX PSI Access
- The Wide Area Network Device Drivers (WANDD).

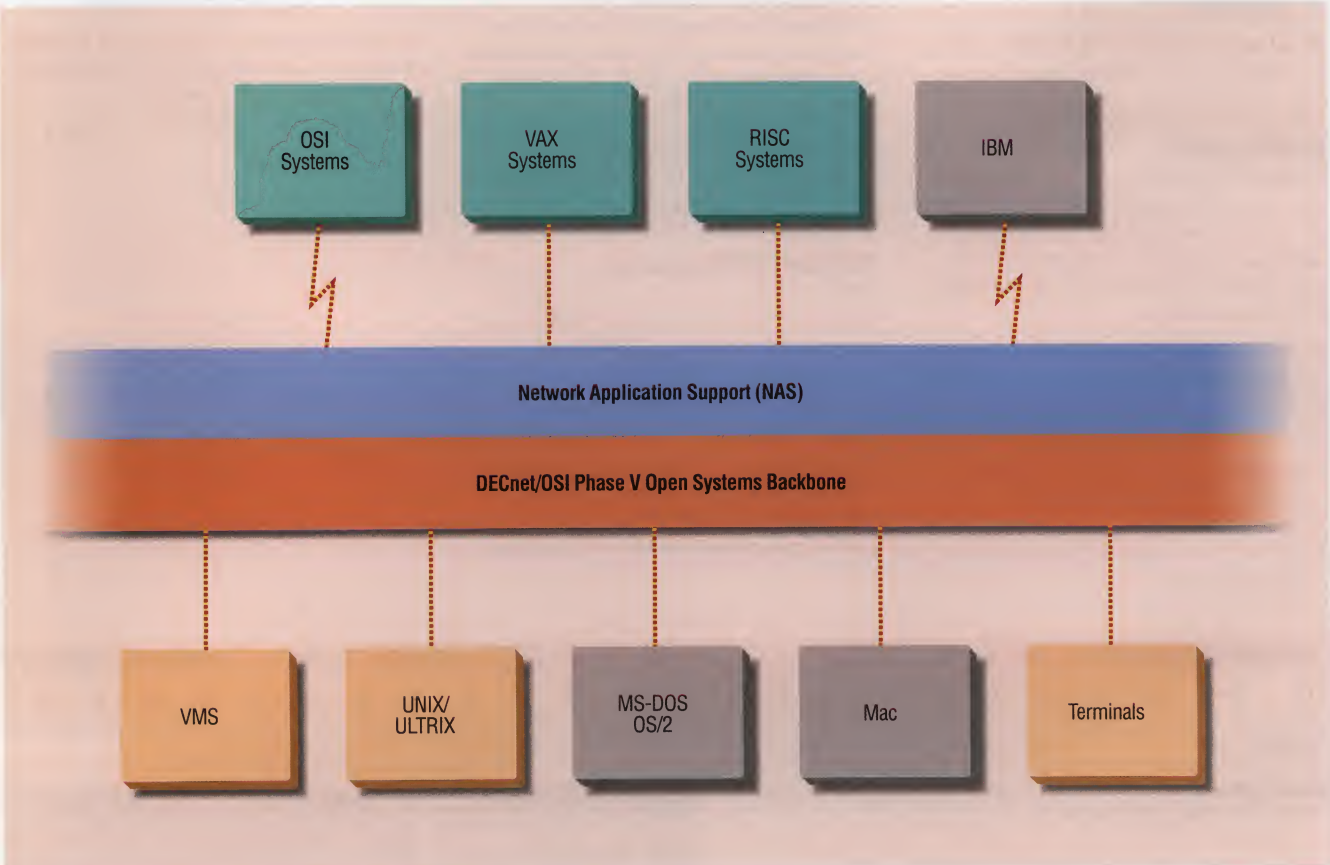
These components provide updated capabilities to the currently available OSI products:

FTAM provides the OSI file transfer, access and management to permit access to files on an open system, with new two-way communications between DECnet DAP and FTAM protocols and support for Restart/Recovery.

OSAK provides the OSI upper layers. It adds support for the Application layer (with Association Control Service Element (ACSE)) and Presentation layer to the current Session layer support.

VOTS provides the Transport layer with support for Transport Classes 0, 2, and 4, and support for the use of End System-to-Intermediate System (ES-IS) routing.

PSI: The DECnet-OSI kit includes the media for both PSI Client (also known as Access) and full PSI. The PSI Client is enabled with the DECnet PAK. This client can connect to any existing gateway or multi-host system. To use full PSI or LLC2, you need to purchase the PSI licence (UPI 071); all the necessary media is included in the kit.



These components, together with the Message Router X.400 Gateway product, provide the OSI capabilities required by the GOSIPs for local area networks. The Connection Oriented Network Service (CONS) can be delivered on a WAN using either an X.25 Gateway 100/500, and/or a VAX PSI system; the Connectionless Network Service (CLNS) over a WAN can be provided via a WANrouter or DECNIS 500/600.

The DECnet components in DECnet/OSI provide for the optional use of the DECdns namespace for the nodes database along with the DECdns and DECdts (Digital Distributed Time Service) clerks and node name management tools to populate the namespace with the DECnet nodes. DECdns client is provided within the End System of DECnet/OSI, while the DECdns server is within the Extended Function. Use of DECdts is optional and requires the installation of the DECdts Server (included in the DECnet/OSI kit) in the network.

The Phase V management components include the following:-

- The new Network Control Language (NCL)
- Common Trace Facility (CTF)
- Event Dispatcher (EVD)
- CMIP Management Listener (CML)
- Transition tools required to manage the DEC WANrouters and X.25 Gateway and to convert from NCP to NCL.

The previous FTAM and OSAK separate products are superseded by the DECnet/OSI,

Ordering information

DECnet/OSI for OpenVMS does not support host-based routing, it is available as an End System (UPI D04) or Extended Function (UPI D05) licence. The End System licence gives you DECnet/OSI Phase V by purchasing and installing the DECnet/OSI media - plus it is also suitable for those wishing to remain at Phase IV by using DECnet-VAX End Node within their OpenVMS media. The Extended Function licence provides the same capability as End System, plus DECdns Server, OSI Application Gateway and Cluster Alias.

Existing DECnet-VAX V5.5 licence holders have the right to install and operate DECnet/OSI for VMS by simply purchasing the new media kit (QA-D04AA-H*).

For Phase IV DECnet-VAX users, both PSI Access and the Wide Area Network Device Drivers (WANDD) are still available as separate layered products.

WAN Device Drivers for VMS V1.2 SPD 29.64
CONOLD ✓ CONDIST ✓ 14 DAYS ✓

LICENCE	**QL-VAWA9-AA**	
MEDIA	**QA-VAWAA-H5**	(TK50)
or	**QA-VAWAA-HM**	(Tape)

Required Software: VMS V5.0 – V5.5. Note: Licence included in DECnet/OSI.

DECnet/OSI for OpenVMS (End System) V5.5 3U SPD 25.03 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

TR R Q C P N M L K S J H B 2 G F E 3 4 D U V 5

QL-D04A -AA

Required Software: VMS V5.5. This licence is also suitable for Phase IV DECnet-VAX when used with the DECnet media with VMS.

EXTRA DOCUMENTATION SETS		MEDIA AND DOCS	TK50 5 Tape M
DOCS	**QA-D04AA-GZ**	MEDIA	**QA-D04AA-H**

DECnet/OSI for OpenVMS (Extended Function) V5.5 3U SPD 25.03 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

TR R Q C P N M L K S J H B 2 G F E 3 4 D U V 5

QL-D05A -AA

Required Software: VMS V5.5. This licence is also suitable for Phase IV DECnet-VAX when used with the DECnet media with VMS.

EXTRA DOCUMENTATION SETS		MEDIA AND DOCS	TK50 5 Tape M
DOCS	As End Sytem	MEDIA	As End Sytem

DECnet /OSI for OpenVMS ES to EF Upgrade V5.5 3U SPD 25.03 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

TR R Q C P N M L K S J H B 2 G F E 3 4 D U V 5

QL-D09A -AA

Required Software: VMS V5.5 DECnet End System. This licence is also suitable for Phase IV DECnet-VAX when used with the DECnet media with VMS.

EXTRA DOCUMENTATION SETS		MEDIA AND DOCS	TK50 5 Tape M
DOCS	As End Sytem	MEDIA	As End Sytem

Data Integrity & File System Performance

SECURITY FOR MISSION-CRITICAL APPLICATIONS

RMS Journalling

VAX RMS Journalling provides data integrity for any RMS sequential, relative or indexed file. Your applications need not be specially adapted to make use of this facility; the journalling takes place without the need to write data integrity code into your application.*

- Protects RMS data files from loss and inconsistency, potentially caused by a variety of external factors.
- Three different methods: after-image, before-image, and recovery unit journalling.
- Supports all RMS file organisations: sequential, indexed and relative.
- Activated using simple DCL commands.

VAX RMS Journalling is a powerful software tool to ensure data consistency and integrity of data records based on the VMS RMS subsystem (Record Management Services). It gives the user the ability to include changes made in a file, or to make them retrospectively. Time-intensive recovery work is not necessary since the error-free state of a file can be re-established using the journal.

Supports all RMS file organisations

RMS Journalling can be used on single or multiple files. A file can be marked for one of the journalling types or for a combination. The three journalling methods can also be combined as desired within an application. Documentation is not included in the VMS documentation set; this must be ordered separately — part number QA-VDVAA-GZ.

**Code already present in VMS.*

VAX Disk Striping Driver

Some users have applications which need to read or write a file at a higher rate (Mb/sec) than a single RA or RF series disk drive can provide. By spreading the file across several disk drives, and reading or writing over several channels (controllers) simultaneously, much higher bandwidth can be achieved. Disk Striping is a technique which allows multiple I/O requests to be executed in parallel by several disk drives (and controllers) in response to what the application views as a single I/O request.

The VAX Disk Striping Driver implements such Disk Striping for VMS systems. The VAX Disk Striping Driver provides the ability to create one or more 'stripesets', each composed of two or more physical disk drives and represented to user applications (and VMS utilities) as a single pseudo-device. As a consequence, the VAX Disk Striping Driver is transparent to almost all VMS software; only diagnostic software, which needs to diagnose members individually, is the exception. The user may select the 'chunk' size (which defaults to the number of logical blocks on the disk track) and number of stripe members for ultimate application performance.

New features in V2.0 include:-

- Provides full VAXcluster support: all CI nodes have direct access to stripeset.
- Enhanced RF-series disk support, addition of RZ-series disks.
- Performance tuning aided with additional STRIPE LIST commands.
- New documentation.

Which method for which error situation?

Causes of error	Journalling: After Image	Before Image	Recovery Unit
Head crash	✓		
Intentional			
- deletion	✓		
- overcopying	✓		
Updates with			
- incomplete files	✓		
- destroyed files	✓		
System error	✓	✓	
Application error	✓	✓	
Incorrect inputs	✓	✓	
Data consistency after error (e.g. power failure)			✓

RMS Journalling V5.5 3U SPD 27.58 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

TR R Q C P N M L K S J H B 2 G F E 3 4 D U V 5

QL-VDVA -AA

The licence for RMS Journalling doesn't come with supporting documentation. Please order QA-VDVAA-GZ separately.

EXTRA DOCUMENTATION SETS
DOCS QA-VDVAA-GZ

MEDIA AND DOCS TK50 5 Tape M
MEDIA Media included in VMS

VMS Volume Shadowing V5.5 3U SPD 27.29 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

TR R Q C P N M L K S J H B 2 G F E 3 4 D U V 5

QL-AB2A -AA

The licence for Volume Shadowing doesn't come with supporting documentation. Please order QA-AB2AA-GZ separately.

EXTRA DOCUMENTATION SETS
DOCS QA-AB2AA-GZ

MEDIA AND DOCS TK50 5 Tape M
MEDIA Media included in VMS

VAX Disk Striping Driver V2.0b 3U SPD 31.66 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

CW B C D E F G H J K L M N Q S T U V

QL-YELA9-J

Required Software: VMS V5.2-V5.5

EXTRA DOCUMENTATION SETS
DOCS QA-YELAA-GZ

MEDIA AND DOCS TK50 5 Tape M
MEDIA QA-YELAA-H

VMS Volume Shadowing

TOP-SECURITY MEASURES FOR YOUR DATA

PRICE REDUCTION

Volume Shadowing at low-end

Volume Shadowing is the process of maintaining multiple copies of the same data on two or more disk volumes. This duplication of data provides greater data availability and faster data access. The system can also find data more quickly because it can search more than one disk — providing faster reads. If media deteriorates or fails on one device, systems with Volume Shadowing can duplicate data and copy it to the replacement drive.

Digital now recommends the use Phase II Volume Shadowing over Phase I. It offers many advantages, not least of which is greater flexibility. You no longer need a CI based configuration, or for those who have a CI cluster, it is no longer necessary to have all members of a shadow set reside on the same HSC. Phase II also offers enhanced application I/O performance during Copy and Merge (transient) operations.

VMS Volume Shadowing Phase II supports:

- ClusterWide shadowing of all MSCP-compliant DSA disks having the same physical geometry on a single system or located anywhere in a VAXcluster system.
- All DSA disks including local adapters, SCSI disks, all DSSI (RF series) disk devices on any VAX computer, and across MSCP servers.
- Distributed, not centralised, shadowing.

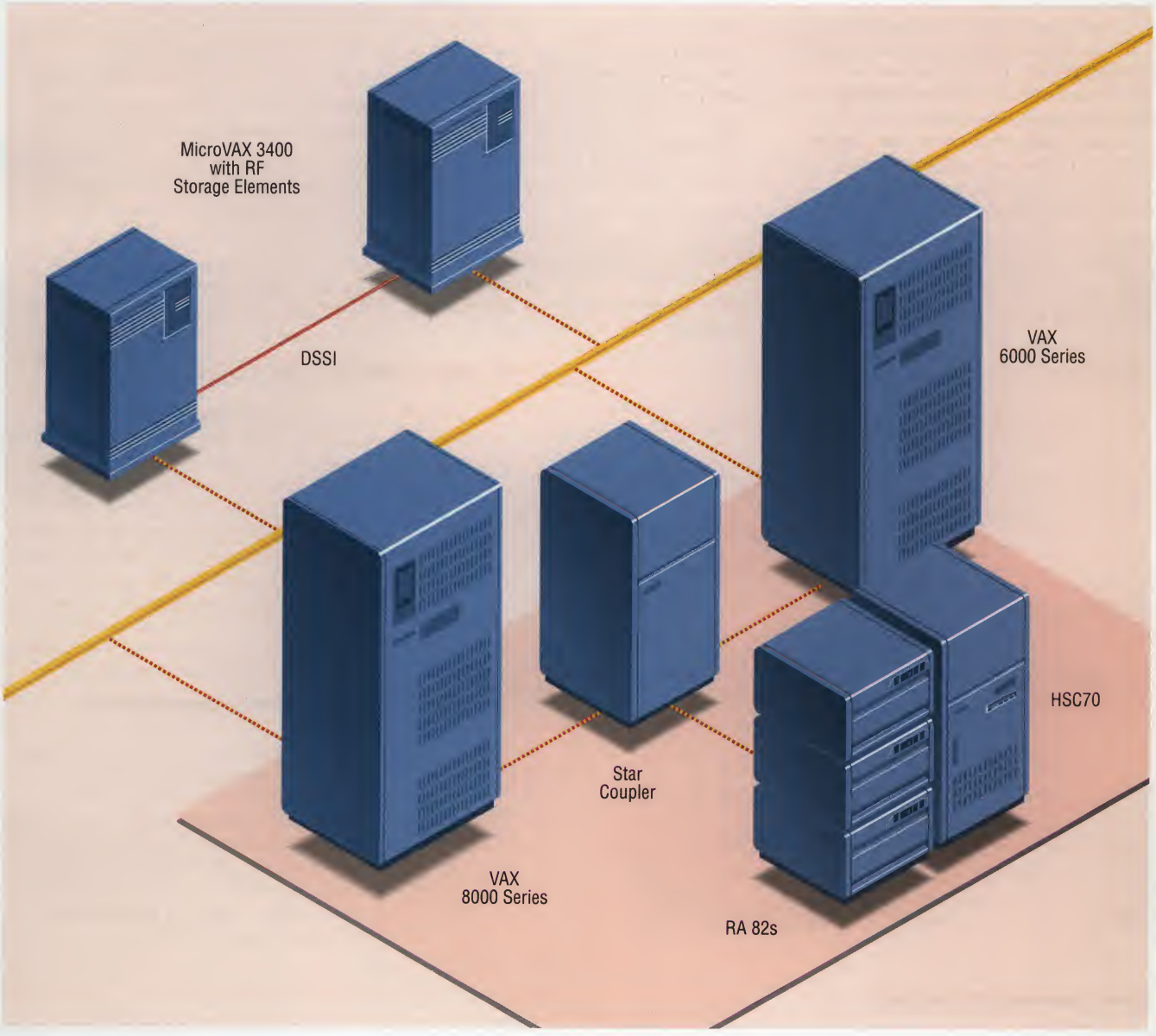
Volume Shadowing Phase II creates and maintains virtual units in a distributed fashion on each node in the cluster. It supports shadowing on a VAXcluster where inter-processor communication is carried out over computer interconnect (CI), network interconnect (NI), Digital small systems interconnect (DSSI) or mixed interconnect.

It is possible to use both Phase I and Phase II shadowing on the same node at the same time. You can also mix Phase I and Phase II shadowing in a VAXcluster system.

Please note that Volume Shadowing Phase II is not supported on the MicroVAX 2000 and VAXstation 2000, but they can shadow data on other compliant machine disks.

Volume Shadowing needs to be installed on all nodes that need to access volume shadowed sets.

To ease the transition to Phase II, where all nodes require licensing, the price of the low-end (e.g. Workstation) licence has been reduced until 30th June 1993.



DECprint Architecture

NEW PRODUCT

DECprint Supervisor

FOR LEADING EDGE NETWORK PRINTING

For some time, Digital's printing strategy with its own laser printing technology has included ANSI and the PostScript page description language from Adobe. Now, in response to customer requests, we have opened up printing support for selected non-Digital PostScript printers in an OpenVMS environment.

The release of our new product, DECprint Supervisor, is a major step closer towards enabling you to print from any desktop to any printer.

DECprint Supervisor (DCPS) for OpenVMS V1.0

DECprint Supervisor (DCPS) for OpenVMS is a family of PostScript printer software products that run on OpenVMS systems to provide access to Digital and selected third-party PostScript Level 1 and Level 2 print devices. The DECprint Supervisor product set controls Digital PrintServer and DEClaser printers along with many third-party printers such as the Hewlett-Packard LaserJet and Apple LaserWriter families of printers. DECprint Supervisor is another introduction in a continuing series of products that conform to the DECprint architecture, the printing architecture for Network Application Support (NAS) platforms.

DECprint Supervisor for OpenVMS V1.0 provides access from your desktop or application to PostScript printer-specific features such as input and output tray selection, one- and two-sided printing, and simple ASCII and PostScript printing. It provides host-based, value-added printing and page formatting capabilities such as automatic and user-initiated printer language translation (from DEC PPL3 (ANSI), DDIF bitonal image, HP PCL, IBM Proprinter, ReGIS, or TEKTRONIX to PostScript), page rotation and scaling, multiple page images on a single sheet of paper, page orientation (portrait/landscape), and selection/transmission of specified fonts.

The DECprint Supervisor family consists of the following products:

- **DECprint Supervisor for OpenVMS, Base** (DCPS-Base): Provides basic PostScript and ASCII text printing to Digital PostScript printers. Licence rights to this software product are included with the OpenVMS operating system.
- **DECprint Supervisor for OpenVMS, Open** (DCPS-Open): Provides basic PostScript and ASCII text printing to selected third-party PostScript printers. This software product requires a traditional CPU capacity-based licence.
- **DECprint Supervisor for OpenVMS, Plus** (DCPS-Plus): Provides advanced printing features to print jobs queued to either Digital or third-party PostScript printers. This product provides the ability to modify the appearance of final form document files and enables the printing of files of different printer languages, such as HP PCL and Proprinter files. This software product requires a traditional CPU capacity-based licence.

By uncoupling the software licences from Digital's printers, we can extend our strategy to encompass other printers and give a licensing method consistent with our other software products.

Benefits

DECprint Supervisor offers a single, feature-rich, powerful and reliable print supervisor to support your most popular PostScript printers.

Built into DECprint Supervisor is sophisticated automatic data type detection and translation, which identifies the file data type for the user and translates the data type for the designated PostScript printer. It also recognises embedded PostScript and properly processes the PostScript portion of the print file. Translators for the most popular protocols (HP PCL Level 4, DEC PPL3 (ANSI), Proprinter XL24, TEKTRONIX 4010/4014, DDIF bitonal image files and ReGIS) enable printing from a wide range of applications.

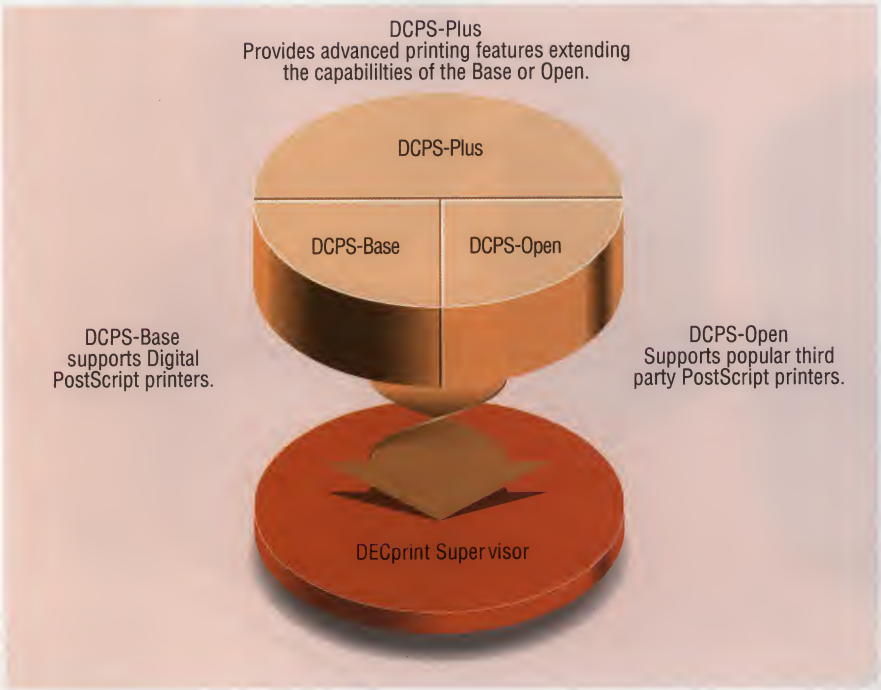
When combined with the benefits of Digital's networking, there is support for shared PostScript printing with PCs networked via PATHWORKS.

As you would expect from a supervisor product, DECprint Supervisor provides status and error messages to the user's terminal or the operator's console, plus centralised control and management of the printer and print job.

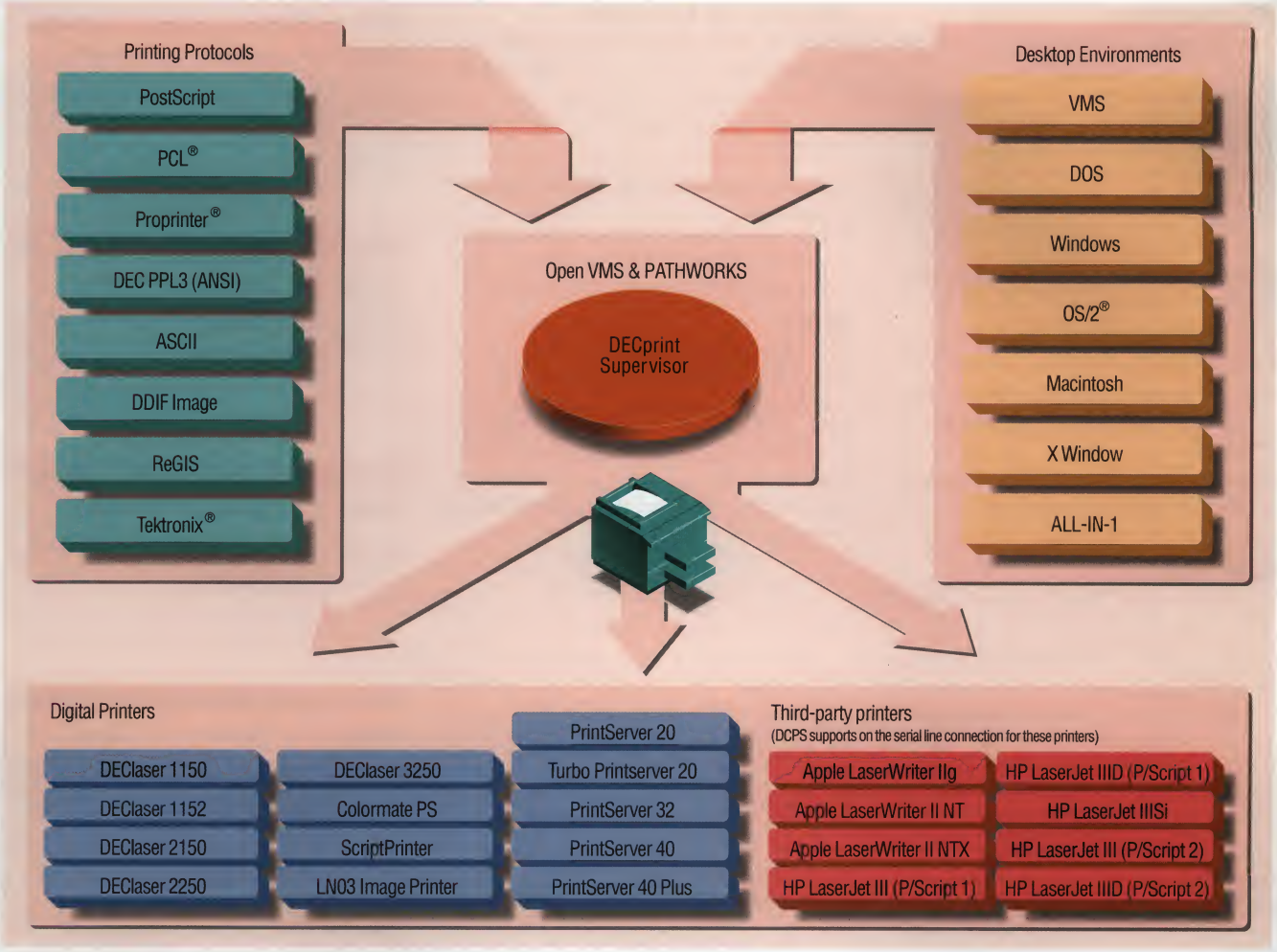
DECprint Supervisor offers additional features over the DECprint Printing Services V4.1 software, including support for DEClaser 1152 Level 2 PostScript, third-party printers and automatic file type detection. We believe that many users will want to immediately move up to DECprint Supervisor, but you can run both together on the same processor if required. As an additional incentive to move to DECprint Supervisor-Plus, we are setting a special, low introductory price until 30th June 1993.

DEC PrintServer Supporting Host Software

Digital's PrintServers offer Ethernet-based, high-speed printing of documents. As an Ethernet device, the intelligence for the PrintServer is loaded at power-up by a VMS load host. Once loaded using PrintServer Host Supporting Software, client systems can direct print requests at the appropriate queue; DCPS needs to be loaded on each client system to achieve this.



DECprint Supervisor (DCPS) components.



DECprint Supervisor offers comprehensive management of all your printing requirements.

DECprint Utility

The DECprint Utility for PostScript to Sixel Printing provides users of LJ250, LA324, LA75, LA210 and LN03 Plus Printers with the ability to output PostScript files. Printers may be connected to a host, or directly to the user's terminal.

This capability provides Colour PostScript output capabilities for LJ250 and LA324 printers. This breakthrough product completes the capability of printing virtually any file to a Digital printer.

PrintServer Load Software V4.1 **SPD 27.68**
CONOLD ✓ **CONDIST** ✓ **14 DAYS** ✓

MEDIA **QA-798AA-H5** (TK50)
or **QA-798AA-HM** (Tape)

Required Software: VMS V5.4 - V5.5, DECnet VAX.

DECprint Utility V1.0 **SPD 31.56**
CONCURRENT USE LICENCE
CONOLD ✓ **CONDIST** ✓ **14 DAYS** ✓

LICENCE **QL-VZPAA-3B**
MEDIA **QA-VZPAA-H5** (TK50)
or **QA-VZPAA-HM** (Tape)

Required Software: VMS V5.1 or greater.

DECprint Supervisor Plus V1.0 **3U** **SPD 44.15** **CONOLD** ✓ **CONDIST** ✓ **CDDS** ✓

TR R Q C P N M L K S J H B 2 G F E 3 4

QL-09LA **-AA**

Required Software: OpenVMS VAX V5.3–V5.5-2. In addition, PrintServers require DECnet and PrintServer host V4.1 software. **NOTE:** Introductory pricing shown valid until 30th June 1993.

EXTRA DOCUMENTATION SETS
DOCS **QA-09NAA-GZ**

MEDIA AND DOCS **TK50 5** **Tape M**
MEDIA **QA-09NAA-H**

VMS Printer & Terminal Connections

SHARE YOUR RESOURCES

LAT connections

The preferred way of connecting terminals to any Digital VMS or ULTRIX host is by use of a DECserver terminal server. Sitting on Ethernet and loaded from any VMS or ULTRIX load host, these devices allow users to connect to any machine on the local area network. The efficiency of Local Area Transport (LAT) protocol reduces host machine interrupt traffic; this is a licensable technology if you wish to build your own LAT-compliant devices.

In addition, most Digital printers can be shared by connecting them to a terminal server. One logical printer queue can point to multiple devices, providing added availability.

Digital terminal servers now have licences included in the hardware package, so only a media kit is required to get them running.

MUXservers

MUXservers offer the same range of services as Digital's terminal servers, but permit the connection of remote terminals, via a multiplexor.

The MUXserver 300 software is used on both the MUXserver 300 and MUXserver 310. The MUXserver 310 is still limited to connecting up to 16 concurrent users; however, the 300 can now have 64 concurrent users or 96 concurrent sessions.

The MUXserver software allows printer ports to be configured in background mode, ensuring they do not monopolise the link by giving interactive users priority.

DECserver 90TL

The new DECserver 90TL is part of Digital's Smart Hub product set, and is an 8-port replacement for the DECserver 300, offering LAT and Telnet. Unlike some Smart Hub components, the DECserver 90TL requires a software load host.

DECserver 700

The DECserver 700 offers performance of 115.2Kb/s per port speeds. It can give 8-port full modem control, or 16-port limited modem control. As well as high performance LAT, there is complete TCP/IP support via Telnet and Serial Line Internet Protocol (SLIP), manageable via SNMP.

DECserver 250 for Printers

The DECserver 250 provides connections via the network for both serial and parallel printers. Positioned anywhere on an extended Ethernet LAN, the printers can connect to:

- Two Dataproducts compatible parallel interfaces
- Four asynchronous RS232 channels: two at up to 19.2Kb, the other two at 9.6Kb. A single port possesses modem control.

RETOS

The VAX ReGIS to Sixels Converter (RETOS) is a software application that translates a ReGIS file into colour Sixel format. The primary use of this product is to enable output of colour graphics, generated by a myriad of ReGIS-based applications, onto the LJ250 colour desktop printer.

DECserver-250 VMS Load S/W. V2.0 SPD 25.J5
CONOLD — CONDIST ✓ 14 DAYS ✓
MEDIA QA-VTMAA-H5 (TK50)
or QA-VTMAA-HM (Tape)

DECserver-200 VMS Load S/W. V3.1 SPD 27.53
CONOLD — CONDIST ✓ 14 DAYS ✓
MEDIA QA-VCBAA-H5 (TK50)
or QA-VCBAA-HM (Tape)

DECserver-300 VMS Load S/W. V2.2 SPD 25.J1
CONOLD — CONDIST ✓ 14 DAYS ✓
MEDIA QA-VTUAA-H5 (TK50)
or QA-VTUAA-HM (Tape)

DECserver-500/550 VMS Load S/W. V2.1 SPD 26.97
CONOLD — CONDIST ✓ 14 DAYS ✓
MEDIA QA-03KAA-H5 (TK50)
or QA-03KAA-HM (Tape)

MUXserver-300, 310 Load S/W. V1.3 SPD 25.E9
CONOLD — CONDIST ✓ 14 DAYS ✓
LICENCE QL-VT7A9-AA
MEDIA QA-VT7AA-H5 (TK50)
or QA-VT7AA-HM (Tape)

DECserver-700 VMS Load S/W. V1.1 SPD 38.73
CONOLD ✓ CONDIST ✓ 14 DAYS ✓
MEDIA QA-XA5AA-H5 (TK50)
or QA-XA5AA-HM (Tape)

DECserver 90TL for VMS Load S/W V1.1 SPD 38.71
CONOLD ✓ CONDIST ✓ 14 DAYS ✓
MEDIA QA-MJPAA-H5 (TK50)
or QA-MJPAA-HM (Tape)

VAX RETOS V1.0 3U SPD 27.88 CONOLD — CONDIST — 14 DAYS ✓
CW B C D E F G H J K L M N Q S T U V
QL-VEFA9-J

EXTRA DOCUMENTATION SETS
DOCS QA-VEFAA-GZ

MEDIA AND DOCS TK50 5 Tape M
MEDIA QA-VEFAA-H

DEC TCP/IP Services for VMS

ENHANCED RESOURCE SHARING BETWEEN VMS AND UNIX

We at Digital realise that not every system you need to link to has DECnet. That's why you have the choice of using DEC TCP/IP Services for VMS.

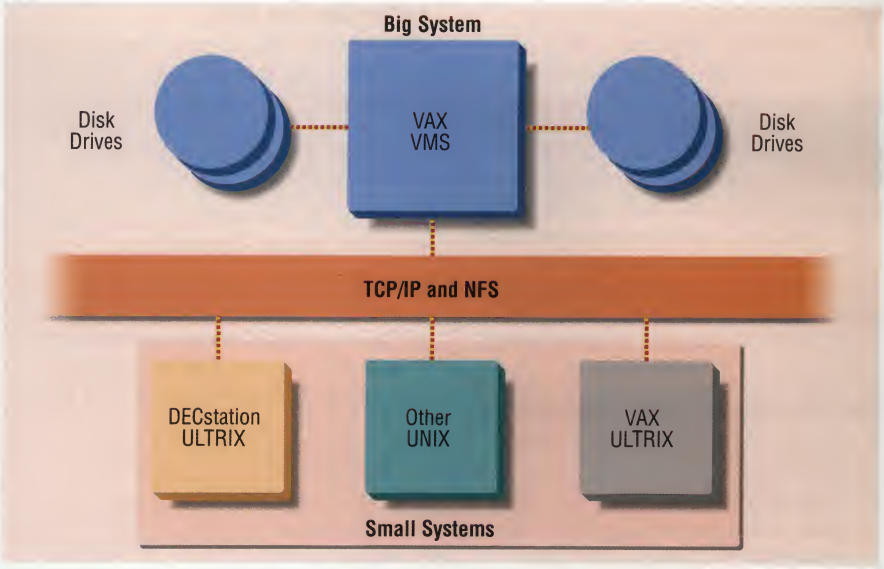
With this new version, our product for linking VMS to UNIX and other systems supporting TCP/IP and NFS protocol suites, has changed its name from VMS/ULTRIX Connection to DEC TCP/IP Services for VMS. This name better reflects the breadth of support offered to users of VMS and UNIX (including, of course, ULTRIX) systems.

New for this version:

- Simple Mail Transfer Protocol (SMTP), the DARPA Internet protocol for sending and receiving mail from remote hosts.
- Simple Network Management Protocol (SNMP) Agent, the default standard network management over TCP/IP.
- Support for Fibre Distributed Data Interface (FDDI).
- DEC TCP/IP Auxiliary Server (inetd), the service which listens for incoming connection requests.
- Berkeley R commands: rsh for remote shell and rexec for remote execution.
- File Conversion 'on the fly' when necessary with NFS.
- Remote Printing with VMS or UNIX client nodes able to print at VMS or UNIX server nodes.

As well as all these new capabilities, DEC TCP/IP Services continues to offer the same dependable bridge between VMS and UNIX:

- TCP/IP communications between VMS and UNIX offer users the best of both worlds.
- NFS server software provides workstation clients with access to VMS data files, and 100% UNIX file system compatibility.
- File Transfer Protocol offers bi-directional file access as an alternative to NFS.



TCP/IP Services for VMS provides NFS and TCP/IP capabilities for a VMS host or VAXcluster.

- Telnet remote terminal protocol allows users to perform remote sessions between VMS and UNIX systems.
- Includes DECrpc support. DECrpc is Digital's implementation of the HP/Apollo NCS (Network Control System) Remote Procedure Call Interface.
- Programmer Interface to allow development using standard TCP/IP protocols.

The best of both worlds

Now there's a way to get the best of VMS and UNIX... and expand the power and versatility of each. Users with a commitment to TCP/IP networking can take advantage of the powerful features offered by DEC TCP/IP Services. Incorporating both File Transfer protocol (FTP), and Network File System (NFS), the system offers the flexible sharing of data according to two separate methodologies.

DEC TCP/IP Services offers communications services between the usually separate worlds of VMS and UNIX by creating a server environment on VMS. Now you can extend the enhanced reliability and availability features of VAXcluster systems to NFS workstation clients. The NFS server software can be active on multiple nodes in a VAXcluster, offering high data availability and 100% UNIX file system compatibility (including full semantic compatibility) to workstation clients. Volume shadowing will further increase data availability on VAXcluster systems.

Telnet

The Telnet Remote Terminal Protocol allows users to establish a remote login session from a UNIX system to VMS, or vice versa. This also allows network users connected via TCP/IP terminal servers to directly access the VMS system.

NFS

Network File System technology allows multiple workstation users to directly access data that resides on VMS. This 'transparent remote data sharing' is the NFS model that many users prefer. Digital's NFS component offers superior performance, as well as more flexible security features, than most third-party NFS products.

Programming Interface

The Programming Interface brings the power to develop your own applications back to you, the user. The options of VMS-style QIO programming, or UNIX-style sockets programming are both offered.

DEC TCP/IP Services V2.0a 3U SPD 25.A4 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

CW B C D E F G H J K L M N Q S T U V

QL-VHRA9-J

Required Software: VMS V5.5.

EXTRA DOCUMENTATION SETS	MEDIA AND DOCS TK50 5 Tape M
DOCS QA-VHRAA-GZ	MEDIA QA-VHRAA-H

Personal Computer Connections

DESKTOP CONNECTIONS AND SERVICES

The personal computer has brought computing power to the desktops of people in many companies. However, in most cases the resources of the company-wide computer network are unavailable to personal computer users. Digital's Personal Computer Systems Architecture (PCSA) is designed to retain the freedom afforded to each individual, and at the same time allow the sharing of information, capital equipment and related enterprise-wide services in innovative ways. It is the PATHWORKS family of products which implement the PCSA design.

The PCSA Client/Server relationship

- PCSA is based on a 'client/server' model.
- Choose between a VMS, ULTRIX or OS/2 based server using the related PATHWORKS Server Software.
- VAX, RISC or Intel computers act as application, data and print servers to your PCs, improving the flow of information around the company.
- Choice of server will probably be based upon the number of PCs being served, performance required, hardware availability, operating system knowledge and cost.

The clients will be PCs running either MS-DOS or OS/2, or Apple Macintosh computers using the relevant PATHWORKS Software. (Please note that the Macintosh can currently only use VMS or RISC servers.)

There are two main components that are common to the three PATHWORKS clients. These are:

File services

Access to files stored on the servers, for PC (both MS-DOS and OS/2 based) and Apple Macintosh users, is provided by the file services. To the client, the files simply appear as a transparent extension of the relevant client's local facilities. On the server they appear in their normal native format. There is a comprehensive management facility for user-specific file access control. Using file services, you can not only share data but also back it up in one go.

Print services

PATHWORKS gives your PCs access to networked printers. Printers may be attached to a terminal server, locally on the server itself, or on a PATHWORKS PC. Macintosh users select Digital printers in the same way they select LaserWriters connected to an AppleTalk network.

PATHWORKS for DOS

This software is required to connect a DOS-based computer into a PCSA environment. The software is sold as two components: a licence, which is required for every PC, and a media kit which is needed for each network installed.

As well as the two common components, PATHWORKS for DOS offers:

- Choice of Ethernet or Token Ring cabling.
- Choice of either DECnet as transport or TCP/IP. (To use TCP/IP, purchase the extra PATHWORKS for DOS TCP/IP kit.)
- Use of Microsoft's LAN Manager V2.0/2.1 technology to give compatibility with all leading applications.
- Support for MS-DOS V3.3, V4.0 and V5.0, plus Microsoft Windows V3.0 and V3.1. V3.1 contains several components to work specifically with PATHWORKS. PATHWORKS also includes a VT320 terminal emulator which can use LAT, DECnet, the RS232 port or Telnet if TCP/IP transport is used.
- The ability to access a parallel printer attached to another PC.
- Support for the NDIS standard, giving you freedom of choice of Ethernet or Token Ring Controller.
- File and Disk services store your data in either native DOS format or invisibly converts them to VMS or ULTRIX for sharing.
- System management tasks, such as backup of your DOS data from file services.
- Remote Boot Services allows you load MS-DOS from a VMS server, giving you a true diskless capability on your PC.
- Included in V4.1 is the ability to connect to InfoServers serving PC-format CD-ROMs.
- The PC DECwindows facility: an MS-DOS application that turns your PC into an X Windows Terminal.
- Downline load for DEC WANrouter 250 synchronous router, enabling remote PCs to have a high-speed WAN connection.

Ordering PATHWORKS for DOS Media

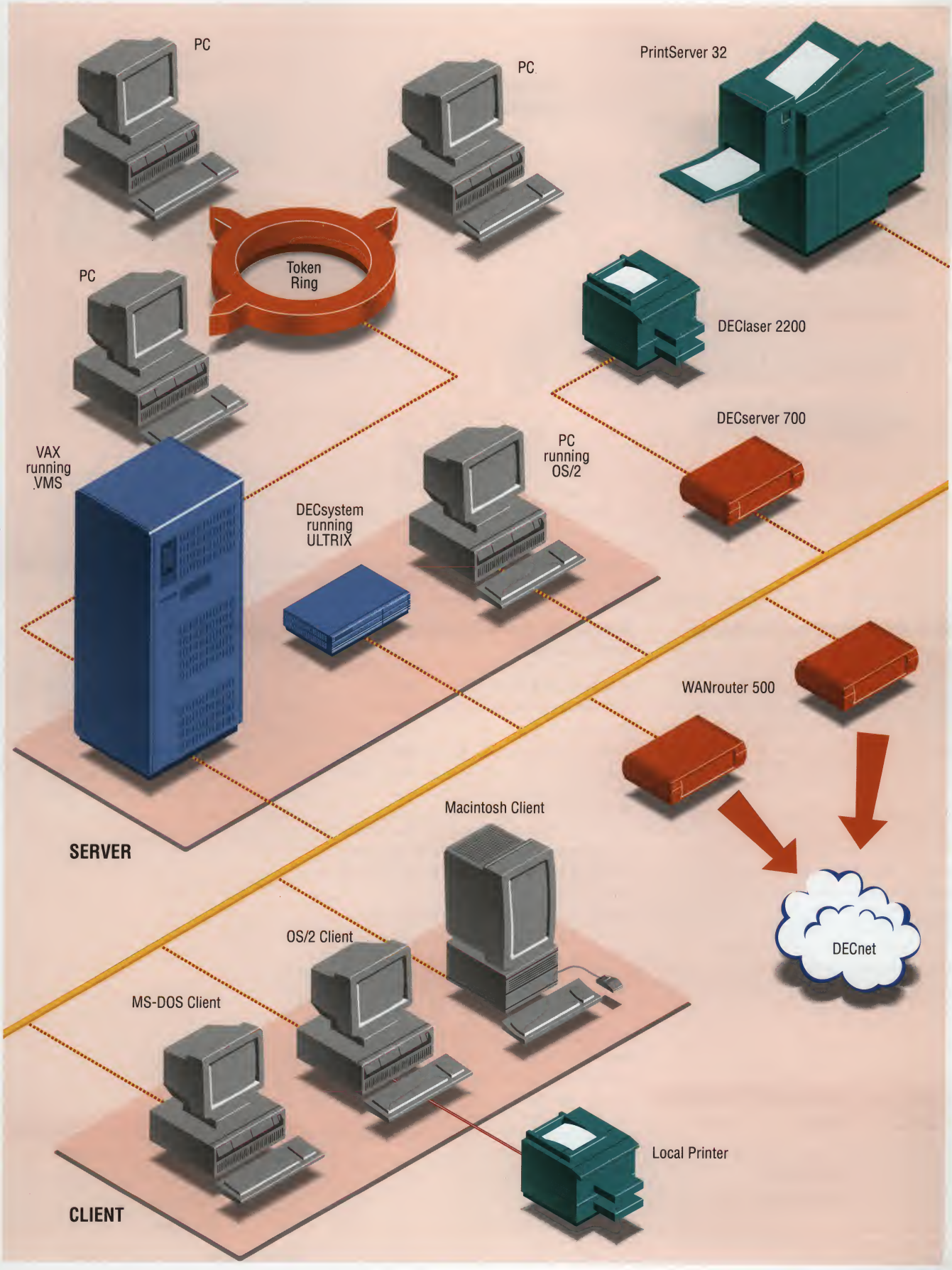
There are three main client installation options:

1. Installing the client software onto the VAX running VMS in a file service and sharing it between all PCs. This method uses VMS Install to create an MS-DOS format file service, copies all the client software into it and then offers it as a service. You then connect to this service over Ethernet or Token Ring. For this method you order either an VMS H5 or VMS HM kit, each contain both 5.25" and 3.5" floppies for the initial connection to the VAX.
2. Installing the client software on an ULTRIX server which then offers it as a service as with the VMS server. For this method purchase the ULTRIX TK50 kit. It too includes both 5.25" and 3.5" media for the initial connection.
3. Installing the client software onto the local hard disk of each PC in its entirety, using several floppies. This method is needed if an OS/2 server is used, for non-Ethernet connections or if no server is required. Order either the HI or HB kit for this method.

PATHWORKS for DOS V4.1a		SPD 55.07
CONOLD — CONDIST — 14 DAYS ✓		
LICENCE	QL-0TLA9-AA	(TK50)
MEDIA		
VMS	QA-0TLAA-H5	(TK50)
or	QA-0TLAA-HM	(Tape)
ULTRIX	QA-0TLAE-H5	(TK50)
or	QA-0TLAE-HM	(Tape)
DOS	QA-0TLAA-HB	(3.5" 720KB Disk)
or	QA-0TLAA-HI	(5.25" 1.2MB Disk)

Required Software: DOS V3.3, V4.0 or V5.0. PATHWORKS for VMS V4.1 or later. **Required Hardware:** A minimum of 640KB system memory. At least one client must have at least one diskette drive capable of reading 5.25" (360KB) diskettes or 3.5" (720KB) diskettes.

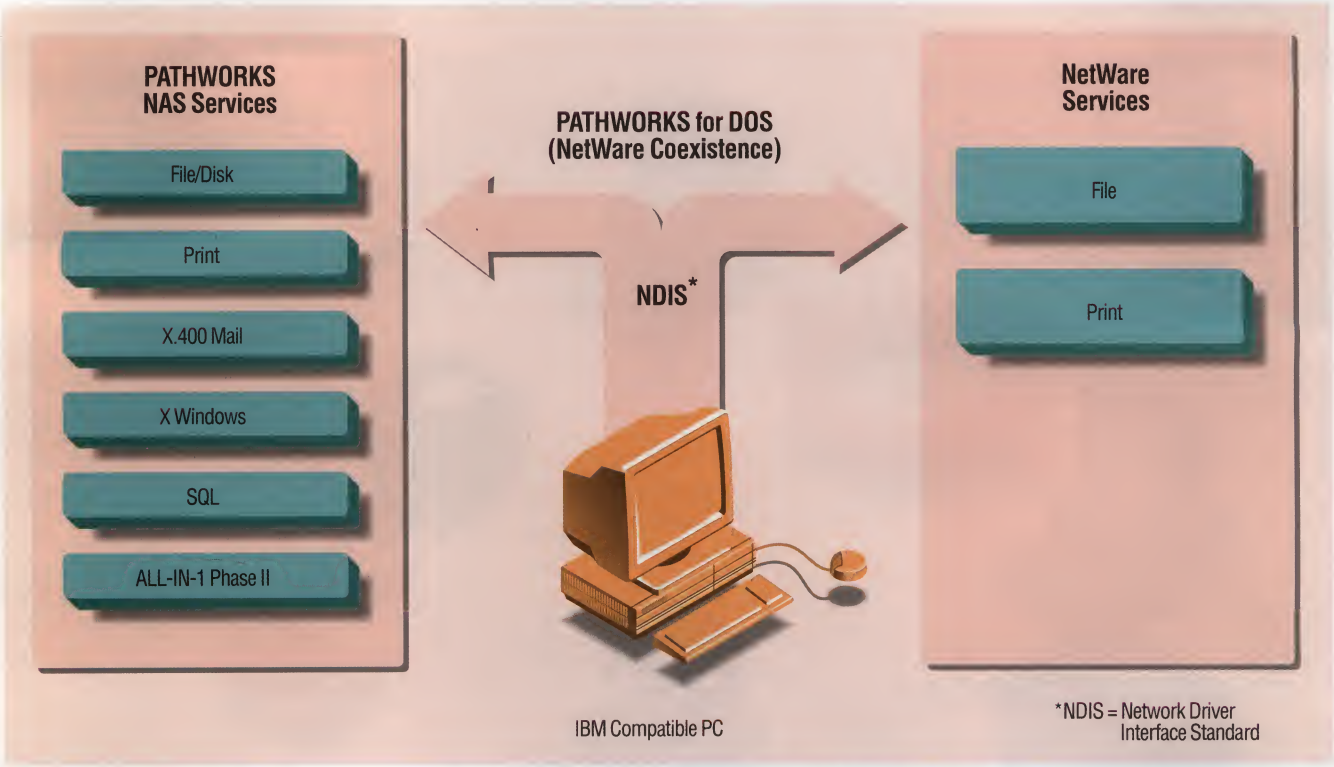
Continued on page 30


PC
PC
PrintServer 32
Token Ring
PC
DEClaser 2200
DECserver 700
VAX running VMS
PC running OS/2
DECsystem running ULTRIX
WANrouter 500
Macintosh Client
SERVER
DECnet
OS/2 Client
MS-DOS Client
Local Printer
CLIENT

Personal Computer Connections *(continued)*

NEW PRODUCT

PATHWORKS Desktop Backup Combined Kit



Coexistence gives NetWare users access to all the PATHWORKS complementary products including X.400 mail, as well as those included in PATHWORKS for DOS such as the X Windows Server.

New! PATHWORKS Desktop Backup

Until now, backing up PC Hard Disks has been a laborious process. This often led to backups being deferred — with the resultant risk of data loss when things go wrong. PATHWORKS Desktop Backup software simplifies backup of PCs by providing unattended distributed backup and restore services for PC hard disks.

The software allows PC users to specify or exclude data to be backed up over a Local or Wide Area Network to tapes on VMS servers. You can set a predetermined schedule, and thanks to the friendly graphical user interface, it's very easy to use. PATHWORKS Desktop Backup supports VAX VMS servers and DOS clients (including support for Windows)

PATHWORKS DT Backup Kit VMS V1.0 SPD 41.52

CONOLD — CONDIST — 14 DAYS ✓

LICENCE for Server and 250 Clients, plus media	
Lic. & TK50	**QB-0MKAA-AA**
Lic. & MT	**QB-0MKAA-AB**

Required Software: Server - VMS V5.2–5.5, DECnet and Rdb RunTime. Client - MS-DOS and PATHWORKS for DOS V4.0 or higher.

PATHWORKS for DOS (NetWare Coexistence) V1.1

Using a Novell server? No problem. Using PATHWORKS for DOS (NetWare Coexistence), you can get the best from both worlds.

PATHWORKS for DOS (NetWare Coexistence) is an add-on component for PATHWORKS for DOS. It extends PATHWORKS services to existing NetWare clients. The product lets you use one Ethernet or Token Ring card for both PATHWORKS and NetWare, by making use of NDIS.

NDIS is a *de facto* standard developed by 3Com. It provides a standard interface that enables any compliant software to talk to any PC Network card which supports an NDIS driver. Digital's EtherWORKS cards come as standard with NDIS drivers.

The licence for PATHWORKS for DOS (NetWare Coexistence) is included with the prerequisite PATHWORKS for DOS; simply purchase the media kit. Please ensure that your PC has enough memory — see the Software Product Description for more information.

NetWare Coexistence V1.1 SPD 34.76

CONOLD — CONDIST — 14 DAYS ✓

LICENCE	Included in PATHWORKS for DOS
MEDIA	**QA-GLVAA-HW**
DOCS	**QA-GLVAA-GZ**

Required Software: Please call for SPD information.

PATHWORKS for DOS (TCP/IP)

PATHWORKS for DOS (TCP/IP) is an add-on component for PATHWORKS for DOS client and allows you to use TCP/IP as the transport between client and server.

If you use a PATHWORKS for ULTRIX server, TCP/IP is included; if you use PATHWORKS for VMS, you need to purchase the TCP/IP Services for VMS media and licence.

PATHWORKS for OS/2 Client

Using an OS/2 based PC on your desk? Use PATHWORKS for OS/2 to share printers, data, electronic mail or to provide terminal emulation capabilities.

As a client, the OS/2 product makes use of both print and file services offered by any combination of servers, as well as disk services offered by any VMS server.

The client also includes the following:

- Can use either Ethernet or Token Ring hardware wiring.
- Choose between DECnet or TCP/IP transport.
- Based on Microsoft's LAN Manager V2.0/2.1 for full industry compatibility.
- Electronic mail including real-time mail notification via pop-up window.
- OS/2 V1.3 support including High Performance File System (HPFS).
- VT320 Terminal Emulation under Presentation Manager.
- Full on-screen editor.
- Supports the EtherWORKS, 3Com or any NDIS-compliant controller.
- Asynchronous DECnet support

PATHWORKS for OS/2 Server

Need an office-based PC Server? PATHWORKS for OS/2 can be configured as a server for both OS/2 and DOS-based clients offering file and print services. In addition to the client features, the server software offers:

- Synchronisation of clients using date and time services. Essential for any electronic mail system.
- An optimised version of OS/2 LAN Manager server, for full performance benefits on 80386 and 80486 systems.
- An OS/2 Mail Server allowing the creation of mail accounts on an OS/2 server and routing of mail between clients.
- Server administration capability, provided by the LAN Manager V1.0 NETADMIN utility.
- Support for the full set of LAN Manager Application Programming Interface (API) functions, which allow the development of distributed applications.

PATHWORKS for OS/2 (TCP/IP)

PATHWORKS for OS/2 (TCP/IP) is an add-on product for either the OS/2 client or server products giving you TCP/IP transport.

PATHWORKS for VMS

By installing PATHWORKS for VMS you can turn any VMS workstation or timesharing machine into a server for your PCs. What's more, the server licence is free! Simply license any client that connects to a service.

PATHWORKS for VMS not only enables you to share data and printers between systems, it's the foundation for a whole lot more: True distributed computing such as databases, electronic mail, videotex, conferencing and document routing.

Features include:

- Choice of Ethernet, Token Ring, or both.
- Choice of either DECnet or TCP/IP as transport. (If you choose TCP/IP you need to purchase the TCP/IP Services media and licence.)
- Disk services, giving access to high performance, DOS-formatted virtual disks, located on the VAX servers in the local area network. The virtual drives appear to the DOS or OS/2 user as standard disk drives (I:, J:, etc.); not available for asynchronously-connected PCs.
- File Services enable you to share data between different clients over a local or wide area network. Your drive D: could be located in Holland and your drive E: in France!
- PCDISK Utility: This allows access to Disk Services from VMS, backup of disk services, command procedure modification of disk services, and allows read/write access to MS-DOS format disks on suitable VMS drives (e.g.: RX23 or RX33).
- Network Management and Control: As well as having network functions available from your PC, the PATHWORKS for VMS software provides services to enable management and control of the network.

PATHWORKS for ULTRIX

PATHWORKS for ULTRIX turns your high performance RISC DECsystem or DECstation into a PC server offering file, print and electronic mail services to DOS and OS/2 client PCs. Its features include:

- Support for both DECnet and TCP/IP.
- Both UNIX style (SMTP) and VAXmail mail systems.
- Server-based accounting with audit and error log files readable by LAN Manager utilities.
- File services use Microsoft's LAN Manager Server Message Block (SMB) protocol.
- Added security can be implemented using ULTRIX V4 Enhanced Security Mode.
- NETBIOS support.

PATHWORKS for DOS TCP/IP V2.0 — **SPD 33.45**

CONOLD — CONDIST — 14 DAYS ✓

LICENCE Client	**QL-YV9AW-AA**	
MEDIA	**QA-YV9AA-HW**	

Required Software: PATHWORKS for DOS V4.1.

PATHWORKS for OS/2 (TCP/IP) V1.0 — **SPD 36.58**

CONOLD — CONDIST — 14 DAYS ✓

LICENCE	**QL-XV7AW-AA**	
MEDIA	**QA-XV7AA-HW**	

Required Software: PATHWORKS for OS/2 V2.0.

PATHWORKS for OS/2 V2.0a — **SPD 55.24**

CONOLD — CONDIST — 14 DAYS ✓

LICENCE Server	**QL-YLXAW-AA**	
LICENCE Client	**QL-YFWAW-AA**	
MEDIA 3.5" 1.44Mb Disk	**QA-YFWAA-HC**	
or 5.25" 1.2Mb Disk	**QA-YFWAA-H7**	

Required Software: Client: OS/2 V1.1, V1.21 or V1.3. **Server:** OS/2 V1.21 or V1.3. **Required Hardware:** 80286, 80386, or 80486 based Personal Computer with local hard disk. 4 MB of memory for client, 6 MB for Server.

PATHWORKS for VMS V4.1 — **SPD 30.50**

CONOLD ✓ CONDIST ✓ 14 DAYS ✓

MEDIA	**QA-A93AA-H5**	(TK50)
or	**QA-A93AA-HM**	(Tape)

Required Software: VMS Operating System, and DECnet-VAX or TCP/IP.

PATHWORKS for ULTRIX V1.2 — **SPD 32.44**

CONOLD ✓ CONDIST ✓ 14 DAYS ✓

MEDIA VAX	**QA-YNGAA-H5**	(TK50)
or	**QA-YNGAA-HM**	(Tape)
MEDIA RISC	**QA-YNGAB-H5**	(TK50)
or	**QA-YNGAB-HM**	(Tape)

Required Software: ULTRIX V4.1, 4.2, and DECnet or TCP/IP

Personal Computer Connections *(continued)*

Using Macs and VAX?

Why not take advantage of both worlds by integrating them? The benefits are enormous...

- Share data using a file service.
- Sharing a printer on the server offers significant cost benefits. The savings could enable you to upgrade to a printer with more functionality.
- Back up all your machines in one go, using the tape drive on your server, for increased safety.
- Take advantage of all the security features in VMS including password protection of data.

...and Macs with ULTRIX?

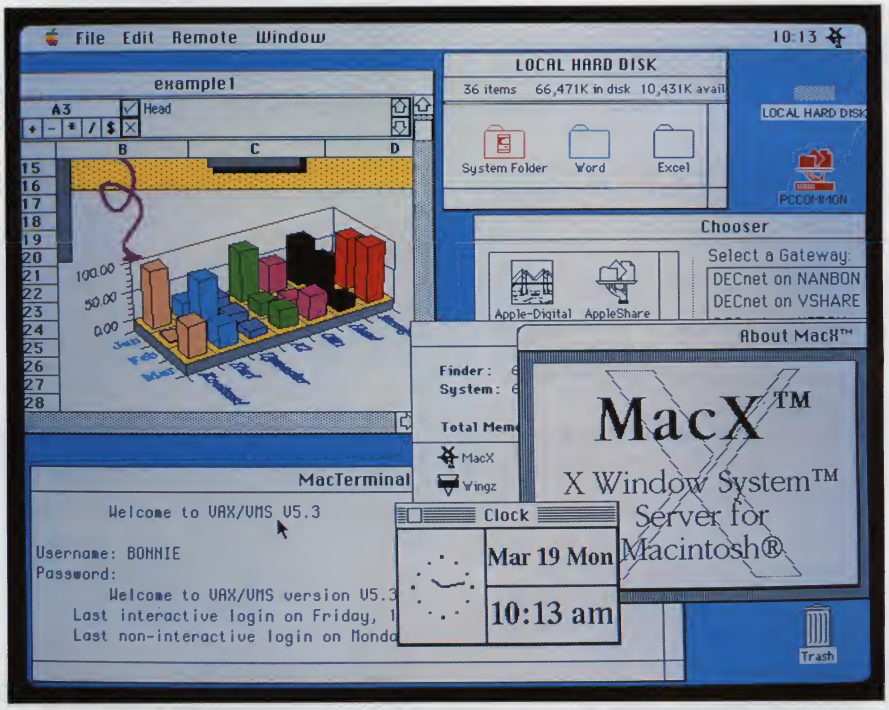
The PATHWORKS family of products has now been enhanced with the addition of Pacer for ULTRIX. Now you can choose to mix and match both ULTRIX and VMS servers.

The Pacer for ULTRIX product is a combination of Pacer's PacerShare, PacerPrint and AppleTalk for ULTRIX. It is distributed by Digital as a media kit, and the warranty covers replacement of defective media. If you require any installation, maintenance or advisory services on the Pacer (rather than PATHWORKS) product, this is offered by Pacer contacts identified by a list in the media kit.

PATHWORKS for Macintosh

PATHWORKS for Macintosh enables any Macintosh to connect either to a VMS server or an ULTRIX RISC server. Using it enables you to:

- Share data stored on the server.
- Share printers connected to the server, to a terminal server or directly to Ethernet.
- Use MacTerminal terminal emulator software to log onto a host machine.
- Run X Window Server to display Motif applications running on a VMS or ULTRIX host.
- Use DECnet for Macintosh.
- Retain Macintosh Communications Toolbox compliance.
- NEW! Version 1.1 now includes support for System 7 of the Macintosh Operating System.



Ordering Information

Purchase a PATHWORKS for Macintosh licence for every Mac connecting to a PATHWORKS or PACER server, and one media kit for each site.

PATHWORKS for VMS (Macintosh)

PATHWORKS for Macintosh V1.1 is now shipped as a separate Macintosh client and VMS server. The PATHWORKS for VMS (Macintosh) software allows a VMS system to act as a file, print, mail, database and application server to Macintosh computers. VAXshare file services are compliant with the Apple Filing Protocol (AFP) Version 2.0.

Other features include:

- Database access: Rdb/VMS databases can be accessed by utilising the Data Access Language or Macintosh SQL client software.
- DECnet transport gateway.

The licence for PATHWORKS for VMS (Macintosh) is by way of the client, simply purchase a media kit.

Pacer for ULTRIX

Pacer for ULTRIX turns your ULTRIX workstation or timesharing system into a seamless file and print server for Macintosh clients running PATHWORKS.

The right to use Pacer for ULTRIX is included with each PATHWORKS for Macintosh client. Simply purchase a Pacer media kit, as well as a PATHWORKS for Macintosh media kit (ULTRIX) and a PATHWORKS licence for every Macintosh.

PATHWORKS for Macintosh V1.1 SPD 31.53

CONOLD ✓ CONDIST ✓ 14 DAYS ✓

LICENCE Client		QL-YPH9W-AA
MEDIA	VMS	QA-YPHAA-H5
	or	QA-YPHAA-HM
	ULTRIX	QA-YPHAB-H5
	or	QA-YPHAB-HM

PACER for ULTRIX/RISC V1.0

CONOLD — CONDIST — 14 DAYS ✓

LICENCE Server		Included in Client
MEDIA		QA-ME9AA-H5
	or	QA-ME9AA-HM

PATHWORKS for VMS (Mac) V1.1 SPD 31.53

CONOLD ✓ CONDIST ✓ 14 DAYS ✓

LICENCE Server		Included in Client
MEDIA		QA-YPCAA-H5
	or	QA-YPCAA-HM

Required Software: Macintosh Operating System 6.0.5, 6.0.7, 7.0 & 7.0.1.

POLYCENTER Tools

Efficient systems and networks can increase productivity in an enterprise by making information readily available to those who need it, when they need it.

It's sometimes hard to determine just how much this contributes to the corporate bottom line — just as it's hard to quantify the productivity gained through inter-office mail, the telephone, or even electric power. However, as the movement of information becomes more critical to the operations of an enterprise, systems — and the network of which they form a part — are viewed increasingly as utilities.

As the objects that make up the system become more complex, it's critical to the success of the system that they are correctly managed. Digital's POLYCENTER solution provides the products and services you need for effective system management. POLYCENTER is a strategy for integrated management, rather than a collection of isolated tools. This ensures that your management capability will grow as your systems develop.

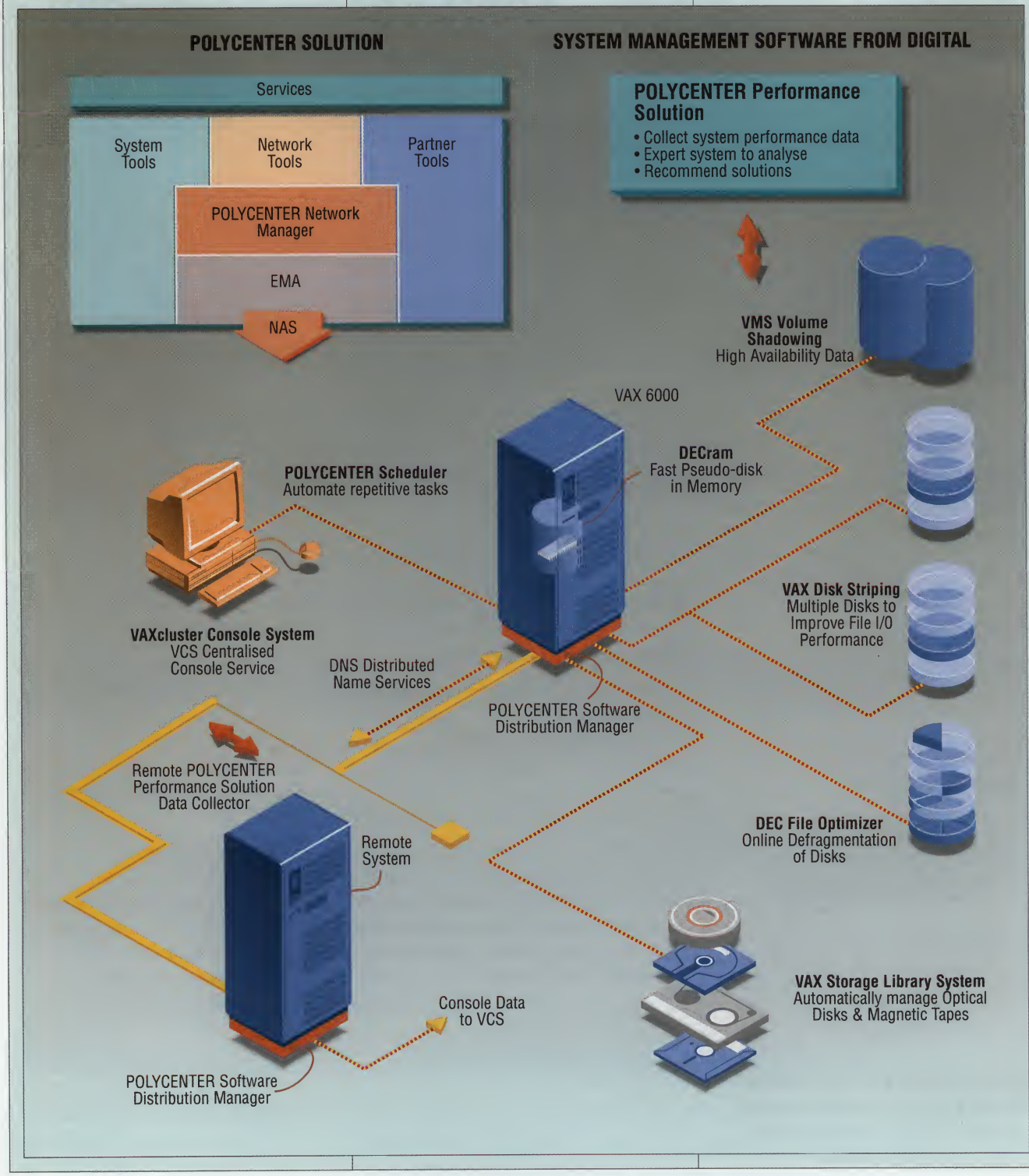
ORDER NOW
SEE PAGE 4a FOR YOUR LOCAL DIGITAL OFFICE

Help us to help you: Don't forget!
We need the name of a system manager and the CPU serial number whenever you order software.

INSIGHTS

POLYCENTER: Integrated System Management

The POLYCENTER solution provides products and services that manage complex, distributed, multi-vendor computing environments more efficiently. EMA (Enterprise Management Architecture) is the foundation of POLYCENTER, and although not every tool in the POLYCENTER solution is currently EMA compliant, Digital and its partners are evolving towards compliancy. Later in this section you can read about the POLYCENTER Network Manager family of Network Management Products. Below we give you an overview of the tools that can improve the performance of your systems, while increasing the productivity and reducing the cost of system management.



DECnet System Services

THE NETWORK IS THE SYSTEM

DECnet System Services is a collection of four discrete products designed to make a computer network operate as one complete computing environment. The products offer the following benefits:

- Users and applications distributed over several computers can access common file systems, independent of their geographic position (much like a Wide Area Network version of VAXcluster file access, though without locking facilities). Use DFS and DNS.
- High-capacity disk drives and printers can be shared cost-effectively by a community of autonomous systems. Use DFS, DNS and DQS.
- A Local Area Network-wide logical name service is provided. Use DNS.
- System management tasks associated with distributed VMS or ULTRIX Systems are simplified, allowing provision of central system management services for the user community. Use DNS and POLYCENTER Software Distribution Manager.

Please see the Index at the back for full details of the product part numbers.

VAX Distributed File Services (DFS)

Distributed File Services allows users on many autonomous VMS systems to directly and efficiently access remote groups of files. Those users and their applications then have access to identical, up-to-the-minute information. For instance, you can use DFS to store documents, program sources or executable applications.

Because only one copy of a file may be needed, the total file storage required to support a group of systems can be decreased. DFS is completely transparent to VMS. DFS can be used to read and write files, and to perform directory operations, without users knowing that the actual file storage resides on another machine. DFS uses the distributed name service (DNS) to store information about the location of physical file storage. The use of DNS provides location independence: disk volumes can be moved from one machine to another, transparent to all users.

VAX Distributed Queuing Services (DQS)

VAX Distributed Queuing Services enables VMS systems to access printers that are connected to other VMS systems. Printing to remote printers is done using the same command and system service calls as local printing. When printers are shared among systems using DQS, they become network-wide resources.

Because DQS systems share printers, they require fewer of them, reducing initial investment and the resources required to manage them.

POLYCENTER Software Distribution Manager

POLYCENTER Software Distribution Manager provides tools for managing a number of computer systems in a distributed environment over local or wide area networks. It allows a site to operate with fewer computer management resources than it might otherwise require.

POLYCENTER Software Distribution Manager makes it simple to provide consistent copies of software to systems and reduces intervention by users. Software installation now becomes a service that can be offered to users by a site facility. With POLYCENTER Software Distribution Manager, users can back up files with a minimum of effort. POLYCENTER Software Distribution Manager maintains a schedule of backup times and instructions, and it starts the desired operations without manual intervention. Such automatic backups can become a service which can be offered to a collection of systems by a site facility.

VAX Distributed Name Services (DNS)

VAX Distributed Name Services provides a global naming service that stores certain types of information for DFS, POLYCENTER Software Distribution Manager and other applications. DFS uses DNS to maintain information about the names, locations and groups of remote files. POLYCENTER Software Distribution Manager uses DNS to store names and attributes of POLYCENTER Software Distribution Manager server and client systems. Having multiple copies of such information enables the service to have higher reliability and better overall performance.

DNS call hold information about millions of entries and still provide efficient access and reliable operation. Thus DNS can support very large networks with many different applications storing information. Typically, information is stored closest to where it is most frequently read and modified, but all information can be accessed from any system in the network.

Remote System Manager (RSM) Server V2.3 — 3U — SPD 29.59 — CONOLD ✓ — CONDIST ✓ — 14 DAYS ✓

TR	R	Q	C	P	N	M	L	K	S	J	H	B	2	G	F	E	3	4	D	U	V	5
QL-B13A ▢ -AA																						

Required Software: VMS V5.1 – V5.5, DECnet-VAX and DNS.

EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
DOCS QA-B13AA-GZ	MEDIA QA-B13AA-H ▢

Remote System Manager (RSM) Client V2.3 — 3U — SPD 29.59 — CONOLD ✓ — CONDIST — — 14 DAYS ✓

TR	R	Q	C	P	N	M	L	K	S	J	H	B	2	G	F	E	3	4	D	U	V	5
QL-B14A ▢ -AA																						

Required Software: VMS V5.1 - V5.5, DECnet-VAX and DNS (Note: DNS does not need to be on each node).

EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
DOCS QA-B13AA-GZ	MEDIA Included in RSM Server

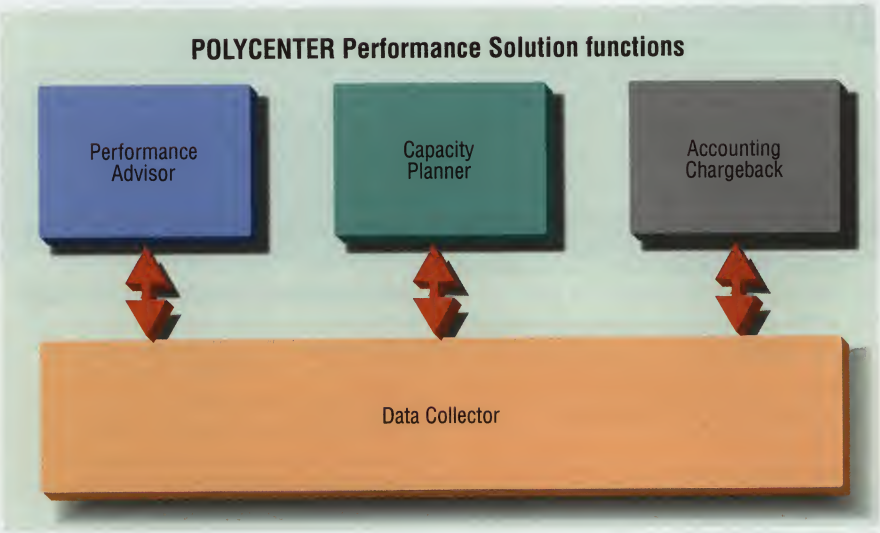
A POLYCENTER PRODUCT

POLYCENTER Performance Solution

NEW INTEGRATED SYSTEM TUNING, CAPACITY PLANNING AND ACCOUNTING TOOLS

POLYCENTER Performance Solution is a single, integrated product set which incorporates performance management and capacity planning products. It completely supersedes our existing VAX Performance Advisor (VPA) and some of the functionality of Software Performance Monitor (SPM).

- Provides assistance to evaluate and optimise current system resources.
- Provides automated analysis techniques and interactive modelling assistance.
- Reduces the risks in decision-making by enabling more accurate planning for growth.



Your solution for proactive planning

POLYCENTER Performance Solution, a component of Digital's POLYCENTER solution, is an integrated set of VMS layered products designed to reduce the time and effort required to manage current as well as future system performance.

The POLYCENTER Performance Solution product set consists of:

- POLYCENTER Performance Solution Data Collector: Gathers and manages VMS system data according to user-specified requirements. It is a prerequisite for all the other POLYCENTER Performance Solution components and must be installed on each node.
- POLYCENTER Performance Solution Performance Advisor: Analyses the data that has been collected, using expert-system techniques. This analysis includes the causes of system degradation, the conditions that existed to cause the degradation, and recommendations for improving performance. POLYCENTER Performance Solution Performance Advisor generates reports to provide a statistical overview of actual system performance. These reports help gauge the impact of changes made to the system, or can be used to perform further analysis. Extensive graphing capabilities are provided.
- POLYCENTER Performance Solution Capacity Planner: The data that is collected by the POLYCENTER Performance Solution Data Collector can be used to perform capacity-planning exercises. This data is used to establish a baseline model which becomes the starting point for "what if" scenarios. For example: "What if I add another CPU; what if my workload increases by 50%; what if I add another storage device; what if I move a workload from one CPU to another?"
- POLYCENTER Performance Solution Accounting Chargeback: The reports that are generated by POLYCENTER Performance Solution Accounting Chargeback indicate charges for various types of system resources based upon user-defined unit prices.

A system management advantage

Investing in the POLYCENTER Performance Solution product set brings many benefits:

- POLYCENTER Performance Solution makes it possible to achieve the most cost-effective use of system resources, now and in the future.
- Performance and capacity management capabilities are integrated into a single product set.
- POLYCENTER Performance Solution produces analyses much faster than can be done manually, enabling improvements to be implemented sooner.

POLYCENTER Performance Soultion Data Collector V1.0a 3U SPD 36.02 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

TR	R	Q	C	P	N	M	L	K	S	J	H	B	2	G	F	E	3	4	D	U	V	5
QL-GX1A ▢ -AA																						

Required Software: POLYCENTER Performance Solution V1.0 requires VMS V5.3 or higher. POLYCENTER Performance Solution V1.0 supports all VAX processors supported by VMS V5.3 or higher. **Note:** VPA and POLYCENTER Performance Solution V1.0 cannot run concurrently on the same VAX processor, SPM and POLYCENTER Performance Solution V1.0 can run concurrently on the same VAX processor.

EXTRA DOCUMENTATION SETS	MEDIA AND DOCS TK50 5 Tape M
DOCS QA-GX1AA-GZ	MEDIA QA-GX1AA-H ▢

POLYCENTER Performance Soultion Performance Advisor V1.0a 3U SPD 36.03 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

TR	R	Q	C	P	N	M	L	K	S	J	H	B	2	G	F	E	3	4	D	U	V	5
QL-GX2A ▢ -AA																						

Required Software: POLYCENTER Performance Solution V1.0 requires VMS V5.3 or higher. POLYCENTER Performance Solution V1.0 supports all VAX processors supported by VMS V5.3 or higher. **Note:** VPA and POLYCENTER Performance Solution V1.0 cannot run concurrently on the same VAX processor, SPM and POLYCENTER Performance Solution V1.0 can run concurrently on the same VAX processor.

EXTRA DOCUMENTATION SETS	MEDIA AND DOCS TK50 5 Tape M
DOCS QA-GX2AA-GZ	MEDIA QA-GX2AA-H ▢

POLYCENTER Performance Soultion Capacity Planner V1.0a 3U SPD 36.04 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

TR R Q C P N M L K S J H B 2 G F E 3 4 D U V 5

QL-GX3A -AA

Required Software: POLYCENTER Performance Solution V1.0 requires VMS V5.3 or higher. POLYCENTER Performance Solution V1.0 supports all VAX processors supported by VMS V5.3 or higher. **Note:** VPA and POLYCENTER Performance Solution V1.0 cannot run concurrently on the same VAX processor, SPM and POLYCENTER Performance Solution V1.0 can run concurrently on the same VAX processor.

EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
DOCS **QA-GX3AA-GZ**	MEDIA **QA-GX3AA-H**

POLYCENTER Performance Soultion Accounting Chargeback V1.0a 3U SPD 36.60 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

TR R Q C P N M L K S J H B 2 G F E 3 4 D U V 5

QL-XTXA -AA

Required Software: POLYCENTER Performance Solution V1.0 requires VMS V5.3 or higher. POLYCENTER Performance Solution V1.0 supports all VAX processors supported by VMS V5.3 or higher. **Note:** VPA and POLYCENTER Performance Solution V1.0 cannot run concurrently on the same VAX processor, SPM and POLYCENTER Performance Solution V1.0 can run concurrently on the same VAX processor.

EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
DOCS **QA-XTXAA-GZ**	MEDIA **QA-XTXAA-H**

A POLYCENTER PRODUCT

POLYCENTER System Watchdog

NEW PRODUCT

AUTOMATIC MONITORING AND CORRECTION

The POLYCENTER System Watchdog products stand guard over your OpenVMS systems, anticipating computing problems before they become serious.

- Provides constant monitoring of OpenVMS systems.
- Automatically detects changes in computing resources and notifies IS personnel.
- Initiates user-specified corrective action.
- Provides realtime diagnostic and error recovery capability.

There are two components, an Agent and a Consolidator, which together monitor areas such as networks, systems and subsystems, processes and external or user-defined events. Staff can interactively interrogate the traditional system hardware and software events, plus events defined by a user application.

System Watchdog Agent

The POLYCENTER System Watchdog Agent is resident on each node being managed, and is alert for local problems. It runs in the background and requires no monitoring or interactive functions.

System Watchdog Consolidator

If the Agents are the distributed 'nerves', then the POLYCENTER System Watchdog Consolidator is the 'brain' bringing together the data and taking control. It displays system event information to provide views of system problems and system status.

The Consolidator provides real-time control of fault management through its ability to start and stop the monitoring process at any time, and the querying of logging files.

Licensing

For each node you need an agent and consolidator user licence.

POLYCENTER System Watchdog Agent V1.0 3U SPD 41.43 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

TR R Q C P N M L K S J H B 2 G F E 3 4 D U V 5

QL-MTZA -AA

Required Software: OpenVMS V5.2–V5.5-2, DECnet-VAX, also node with Consolidator.

EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
DOCS **As Consolidator**	MEDIA **As Consolidator**

POLYCENTER System Watchdog Consolidator V1.0 3U SPD 41.42 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

TR R Q C P N M L K S J H B 2 G F E 3 4 D U V 5

QL-MTYAG-AA

USER BASED LICENCE	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
PERS **QL-MTYAA-2B**	DOCS **QA-MTYAA-GZ**	MEDIA **QA-MTYAA-H**

Required Software: OpenVMS V5.4 –V5.5-2, DECnet, also node(s) with Agents. **Please note:** Each user is a seperate node.

A POLYCENTER PRODUCT

DEC File Optimizer for VMS

NEW VERSION

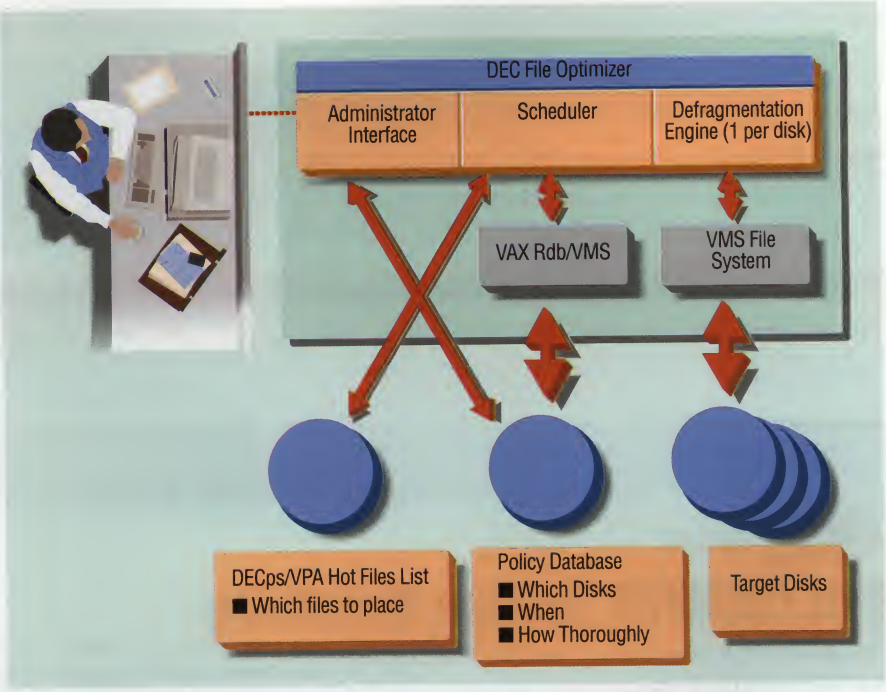
MAXIMISE HARD DISK PERFORMANCE — WITHOUT DOWNTIME

The DEC File Optimizer (DFO) is Digital's solution to reduce file fragmentation and optimise file placement through scheduled defragmentation jobs.

- Reduces file fragmentation for on-line devices.
- Allows placement of files for performance optimisation.
- Can automatically use 'hot file' records from POLYCENTER Performance Solution PA to identify frequently accessed files.
- Provides VAXcluster-wide scheduling of jobs (in PLUS mode).
- Reduces backup time and improves disk utilisation.

With the new release of DEC File Optimizer V1.1, performance has been enhanced, and user flexibility has been extended to allow the ability to defragment individual files. A new option which only consolidates free space, means that new files take longer to become fragmented.

DEC File Optimizer is an online defragmentation tool which simplifies file management. Making this happen whilst ensuring the highest possible data integrity has required changes to the VMS operating system... this is now in place with Version 5.5.



File defragmentation and optimisation.

Data integrity — without downtime

When it comes to ensuring data integrity and improved performance, who better to entrust your files to than Digital, the people who bring you VMS?

The DEC File Optimizer for VMS is a layered software product that reduces file fragmentation and optimises file placement through scheduled defragmentation jobs. Files can be included or excluded from the optimisation process based on a variety of powerful criteria: the user's choice, how badly fragmented the file is, whether the file has placement pointers, and whether the files are indexed. The product does not prevent users from accessing their files while the optimisation process is in progress; if a user tries to access a file that is being defragmented, optimisation activity for the accessed file will stop.

DEC File Optimizer for VMS is compatible with single volumes, bound volume sets, stripe sets, and shadow sets. It can be used in two modes: Standard Mode and PLUS Mode. In Standard Mode, the product runs on systems without additional software requirements. In PLUS Mode, the product uses Rdb Runtime for VAXcluster-wide scheduling purposes without user intervention, through a simple process of scheduling database scripts for each disk.

Policy and scheduling

Storage administrators can use the administrator interface to enter policy declarations into the policy database. Policy declarations specify which disks are to be defragmented at what times using which processor resources (in a VAXcluster). For each declaration, a degree of thoroughness may be specified. This allows storage administrators to tailor the job based on the available CPU resources.

The scheduler component takes its instructions from the policy database. When the scheduler indicates that it is time to defragment a disk, the scheduler initiates an engine and passes instructions to it. For each disk being defragmented, a separate copy of the engine exists. You can also use your existing scheduler — POLYCENTER Scheduler, for instance — for defragmentation time management.

The defragmentation engine reads the disk's file structure and dynamically determines which files should be placed at what locations for optimum results. Administrator-defined policy can include specification of files not to be defragmented, or files to be located close to the disk's centre.

POLYCENTER Performance Solution Hot File information

Both Standard and PLUS modes can work with Digital's performance analysis tools such as POLYCENTER Performance Solution Performance Advisor, to identify 'hot files' (those files that are accessed most frequently). The DEC File Optimizer can automatically use the 'hot file' list so generated to perform file placement. The 'hot files' are placed close together in the optimal central position on the disk, while infrequently accessed files are placed at the disk's periphery.

DEC File Optimizer for VMS V1.1 3U SPD 36.21 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

CW B C D E F G H J K L M N Q S T U V

QL-GJ8A9-J

Required Software: VMS V5.5. and Rdb/VMS Runtime - call for version details (required for PLUS Mode). **Optional Software:** POLYCENTER Performance Solution PA.

EXTRA DOCUMENTATION SETS

DOCS QA-GJ8AA-GZ

MEDIA AND DOCS TK50 5 Tape M

MEDIA QA-GJ8AA-H

A POLYCENTER PRODUCT

POLYCENTER System Census

NEW PRODUCT

COLLECT AND DISPLAY CONFIGURATION DATA

The POLYCENTER System Census family of software products provides a unique capability for gathering and displaying system configuration information clearly and accurately. It enhances control by promoting comprehension and encouraging a proactive management style; it also reduces costs by revealing redundancies and other configuration anomalies.

- Collects and consolidates configuration information and presents it in an easy-to-understand visual form.
- Supports OpenVMS and ULTRIX platforms.
- Uses the Motif graphical user interface for easy access to information.

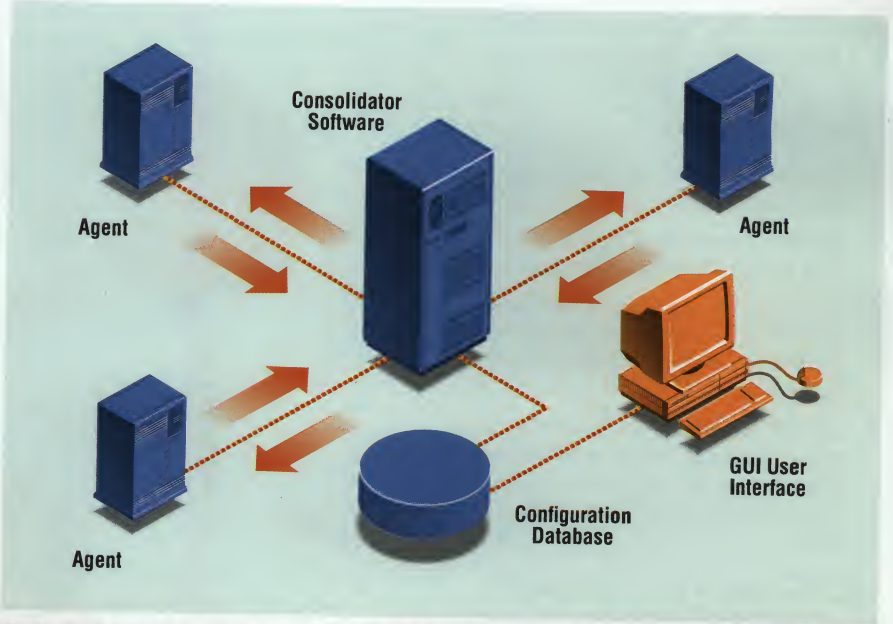
If you are faced with the challenge of managing a complex, multi-platform computing environment, take a close look at POLYCENTER System Census. It automatically gathers, consolidates (in an SQL database) and displays configuration information from distributed, multi-vendor systems. And you'll find that the friendly Motif graphical user interface makes understanding and using that data so much faster and easier.

Of course, not every site has the same data collection and reporting requirements. That's where the flexibility of the POLYCENTER System Census SQL database comes in: it enables you to add and access configuration data collected from sources other than the System Census Agents. (For example, you may already hold data on non-Digital equipment, or on assets, maintenance, service, contracts and policies… this data can easily be included in the System Census SQL database.)

The products that make up POLYCENTER System Census are the Agent, the Consolidator and the Graphical User Interface (GUI). Together, these products provide many levels of security to ensure that sensitive configuration data is protected against inappropriate access. Full access rights control and provision for audit trials and warning mechanisms is built in.

POLYCENTER System Census Agent

The POLYCENTER System Census Agent provides you with the right data at the right time. A unique Agent is installed on each machine running a different operating system; each of these Agents gathers information about the attributes of the system for which it is responsible.



The Agent, Consolidator and Graphical User Interface components of POLYCENTER System Census work together to deliver timely, easy-to-understand configuration information.

POLYCENTER System Census Consolidator

The POLYCENTER System Census Consolidator receives configuration information from the Agents at set times, or on demand. It then formats the data into a relational database for presentation and access by the POLYCENTER System Census GUI or by other SQL or 4GL tools such as DECdecision, DEC RALLY, DATATRIEVE and TEAMDATA. Data can also be accessed remotely using DECquery and other remote SQL-access tools.

POLYCENTER System Census GUI

The Graphical User Interface component of POLYCENTER System Census provides easy and rapid presentation of consolidated configuration data. It uses the DECwindows Motif user interface, and displays resources as they would appear logically, using icons to represent different attributes.

Part of Digital's POLYCENTER solution

A powerful tool in its own right, POLYCENTER System Census is also part of the big POLYCENTER enterprise management picture. For you this means that choosing POLYCENTER System Census today also gives you a stepping-stone towards the intelligent, self-managing network of tomorrow.

System Census Agent OpenVMS V1.0 SPD 39.16

LICENCE TYPE AVAILABLE				UPI ML1
CONC	PERS	TRAD	CW	OTHER
—	—	✓	—	—

System Census Agent ULTRIX V1.0 SPD 39.17

LICENCE TYPE AVAILABLE				UPI ML3
CONC	PERS	TRAD	CW	OTHER
—	—	✓	—	—

Sys. Census Consol. OpenVMS V1.0 SPD 39.19

LICENCE TYPE AVAILABLE				UPI ML4
CONC	PERS	TRAD	CW	OTHER
—	✓	✓	—	—

System Census Consol. ULTRIX V1.0 SPD 39.20

LICENCE TYPE AVAILABLE				UPI ML6
CONC	PERS	TRAD	CW	OTHER
—	✓	✓	—	—

System Census GUI OpenVMS V1.0 SPD 39.22

LICENCE TYPE AVAILABLE				UPI ML7
CONC	PERS	TRAD	CW	OTHER
—	✓	✓	—	—

System Census GUI ULTRIX V1.0 SPD 39.23

LICENCE TYPE AVAILABLE				UPI ML9
CONC	PERS	TRAD	CW	OTHER
—	✓	✓	—	—

A POLYCENTER PRODUCT

POLYCENTER Performance Solution for UNIX NEW PRODUCT

PERFORMANCE MANAGEMENT OF DISTRIBUTED DIGITAL AND SUN SYSTEMS

POLYCENTER Performance Solution for UNIX Systems is Digital's software for collecting and displaying performance data from distributed UNIX systems. It enables you to:

- Spot remote system disasters before they happen.
- Monitor critical SunOS and ULTRIX performance statistics.
- Display graphical data in real-time, or archive for later analysis by popular tools such as Lotus 1-2-3, Excel, and PV-WAVE.
- Identify problems quickly using the Motif interface, which is faster and easier to use than standard tools such as VMstat, CPUstat, and IOstat.

The Performance Solution tool centralises the monitoring of UNIX system performance information for a network of systems. Although distributed in nature, POLYCENTER Performance Solution for UNIX Systems can be used to monitor a stand-alone workstation.

With Performance Solution, the service to your users will be enhanced as computer resources are optimised, bottlenecks are quickly identified and systems are managed proactively to avoid unnecessary problems.

Monitor and Collector components

POLYCENTER Performance Solution for UNIX Systems has two components: Performance Monitor and Performance Data Collector.

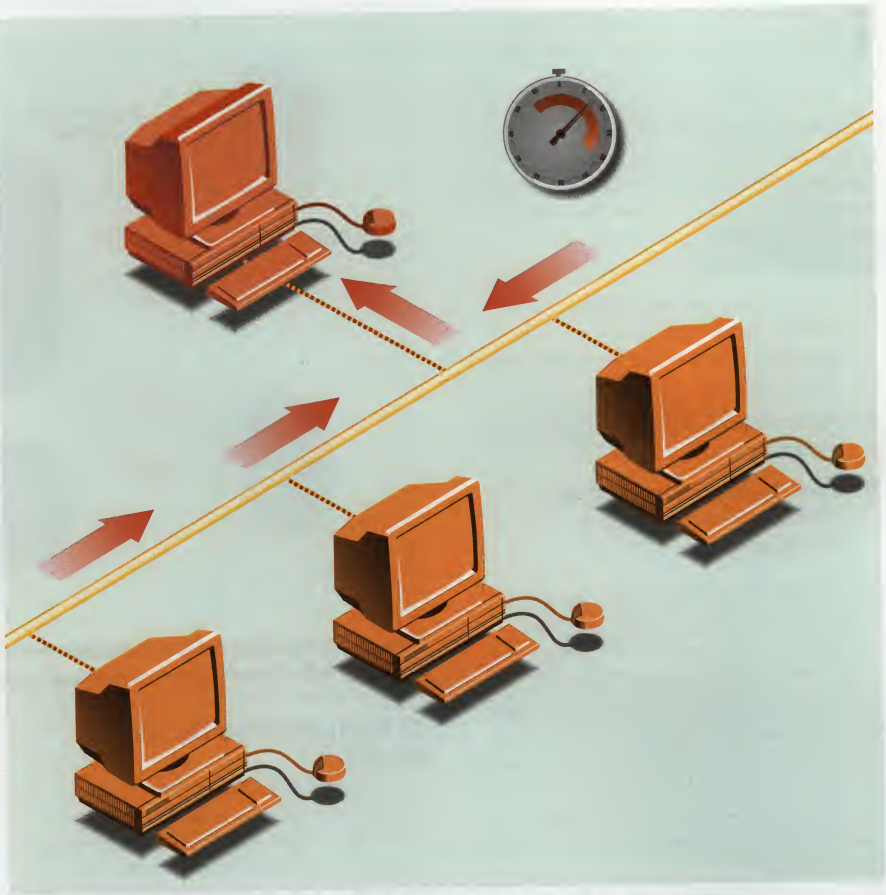
- Performance Monitor is a DECwindows-MOTIF interface, which can be installed on one or more systems in a network. Performance Monitor runs on ULTRIX/RISC.
- Performance Data Collector must be installed on each system from which data is to be collected. Performance Data Collector runs on RISC or VAX ULTRIX, and SunOS.

Putting you in control

Performance Monitor collects UNIX statistics at an interval chosen by the user, and displays them graphically. This information includes the following:

- Processor time
- Memory use
- Interprocess communication
- Process information
- Disk use
- Network activity

Users may choose from many graphs including sorted list, kiviat, bar chart, and strip chart. Some commonly used displays are a kiviat graph of processor modes, strip charts of network counters, bar charts of memory usage, sorted list of top CPU processes, and strip charts of NFS protocol operations.



POLYCENTER Performance Solution for UNIX offers centralised performance management for your systems.

Limits can be placed on data values. When the limits are exceeded, the user is alerted by a visual indicator, a message, and optionally by execution of a user-provided script. Scripts can be used to take action, such as sending mail or trying to fix the problem.

All collected data can be stored in an archive file. A utility is provided to import the data into a spreadsheet or graphical application. Using these archives, weeks of performance data can be distilled for efficient examination. Over time, archives can be compared, allowing trends to be spotted and future needs to be anticipated.

POLYCENTER Per. Sol. UNIX V1.0			SPD 46.97
CONOLD	— CONDIST	— 14 DAYS	✓

Data Collector Lic.	QL-0PTA9-AA
Monitor Lic.	QL-0PTA8-AA
MEDIA	QA-0QHAA-H5/M

Required Software: For Monitor: ULTRIX/RISC V4.2 or higher, TCP/IP, Apollo NCS RPC (Included with ULTRIX as option). For Data Collector: ULTRIX RISC or VAX V4.0 or later, SunOS V4.1.1 or later. Also TCP/IP and Apollo NCS RPC (included in Operating System as option).

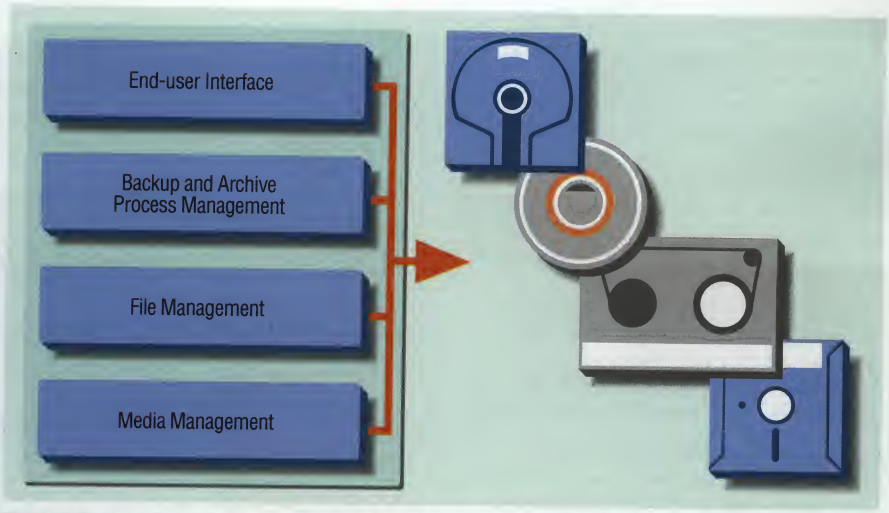
A POLYCENTER PRODUCT

Storage Library System

BACKUP, ARCHIVING AND MEDIA MANAGEMENT

Storage Library System (SLS) for OpenVMS is a powerful back-up, archiving and media management tool.

- A single OpenVMS application to manage open-reel and cartridge tapes, removable magnetic media and optical disks.
- Support includes TA90E, TA91 and the T*8*7 family tape subsystems, and the RV64 optical jukebox.
- New! Support for the StorageTek Automated Cartridge Server (ACS), via optional SLS-ACS licence.
- Remote Tape Facility (RTF) allows backup operations onto remote devices, thus giving cost savings on tape drives.
- Provides an end-user interface to facilitate file storage and recovery requests.



The VAX Storage Library System manages the usage, allocation, tracking and control of removable reel-to-reel tape, cartridge tape and optical disk platters.

Removable media management

SLS helps retrieve archived information quickly and easily by maintaining an online catalogue of files and their media locations. When users request that a specific file be restored, SLS identifies the physical location of the file and requests mounting of the appropriate media on an available tape or RV20 optical drive. When used with the RV64 Optical Jukebox, SLS can locate a file and instruct the Jukebox to mount and restore the file without operator intervention.

StorageTek ACS support

New with this release is the option of using the StorageTek Automated Cartridge Server (ACS) with SLS. The new commands in this SLS option allow operators to inventory volumes in an ACS Library, and import, insert or eject cartridges as needed.

The SLS-ACS licence is loaded on the system together with either the SLS or SLS remote licence. All the media required by SLS-ACS is in the SLS media kit. The SLS-ACS licence details can be found in the ClusterWide part of the *Priced Index* (UPI is MW1).

Remote Tape Facility

This version of SLS includes a major new feature to allow centralised backup over DECnet using Remote Tape Facility (RTF). RTF increases the cost justification for SLS by eliminating redundant tape drives across networks, and centralising tape drive management. RTF offers transparent backups, saves and restores between the remote tape drives and disks. SLS does not require disk space for pre-staging.

Protecting your asset in information

SLS tracks media between the data centre and off-site storage. To prevent accidental media overwrites, SLS automatically verifies all labels and protection levels, reporting any inconsistencies to the operator.

IBM Data Interchange

SLS allows operators to read and write both ANSI and IBM tapes. It will also translate EBCDIC (IBM) to ASCII (most other vendors') code and vice versa. This allows customers to use 9-track or TA90 cartridge tapes to move data back and forth between Digital and IBM systems.

Access to a central archive

SLS is available as two separately licensed products, server (SLS) and client (SLS Remote). Code and documentation for both are provided in the SLS media kit, with the appropriate licence key defining usage. One SLS node can serve many SLS Remote machines, providing a central archive on your DECnet network. If automatic failover capabilities are required, both the server machines must have the SLS software loaded.

Storage Library System (SLS) OpenVMS V2.2 — 3U — SPD 29.67 — CONOLD ✓ — CONDIST ✓ — 14 DAYS ✓

CW B C D E F G H J K L M N Q S T U V

QL-0L7A9-J

Required Software: VMS V5.4 or later, DECnet VAX. This version does not require FMS.

EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
DOCS QA-0L7AA-GZ	MEDIA QA-0L7AA-H

SLS Remote OpenVMS V2.2a — 3U — SPD 29.67 — CONOLD ✓ — CONDIST ✓ — 14 DAYS ✓

CW B C D E F G H J K L M N Q S T U V

QL-YE8A9-J

Required Software: VMS V5.4 or later, DECnet VAX. This version does not require FMS.

EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
DOCS QA-0L7AA-GZ	MEDIA QA-0L7AA-H

Network Management Products

NEW PRODUCT

POLYCENTER SNA Manager

MANAGING YOUR NETWORK ASSETS

The award-winning POLYCENTER Network Manager family of software implements Digital's Enterprise Management Architecture (EMA). It recently won *ComputerWorld's* 1992 I/S Brand Preference Award for network management, and *Digital Review's* 1992 Target Award for Best Network Management Package.

Why Network Management?

Networks are constantly evolving. Today, MIS managers must consider not only the familiar network utilisation and performance challenges, but also a whole battery of new problems and opportunities.

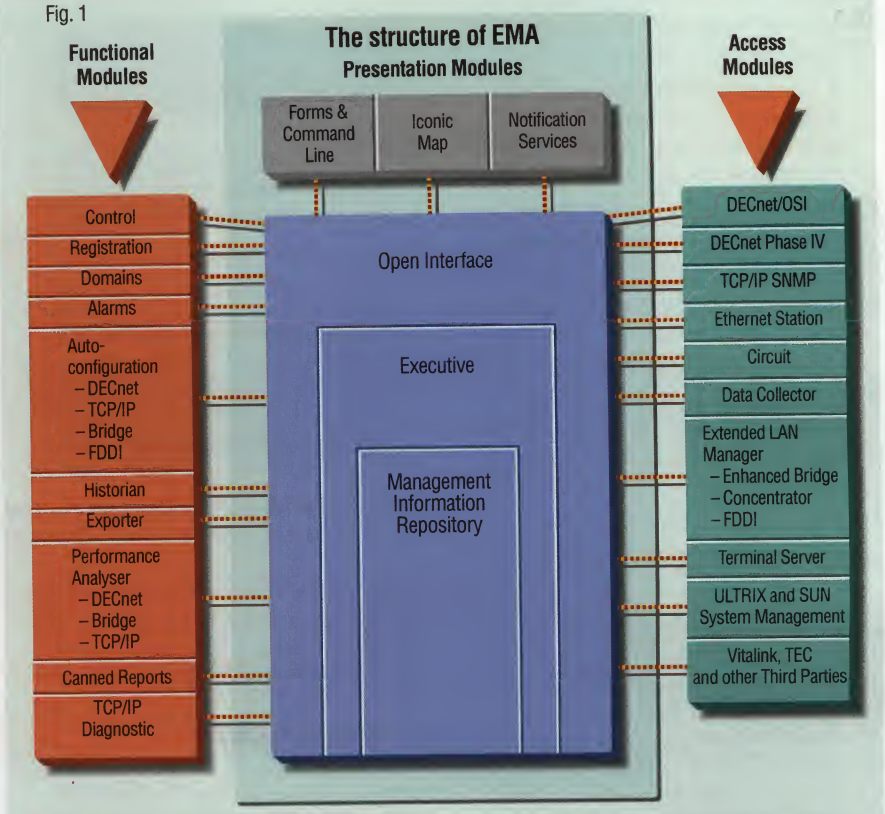
How am I equipped for multi-vendor networking? Is the network going to be ready for the mixed types of equipment — computers, PBXs, LANs, modems, multiplexers, voice/video and telecom devices — that it will be expected to handle? How do we handle the challenges posed by the new and complex types of data — voice, images, video — that will accompany tomorrow's multi-media approach to enterprise-wide computing? And perhaps the key question of all: is the way forward a point-solution based approach — specific, stand-alone tools for specific management tasks — or do we need to move into a network-management *architecture* that will handle all our present and future needs?

Digital's answer to that key question is simple. The way forward is most definitely an architecture-driven approach; it will provide the intelligent management solutions you need today, and the flexibility and sophistication you'll need tomorrow. However, we give you the flexibility to purchase minimum packages using the option of your choice to address specific management requirements, as well as fully integrated packages. The choice between the two approaches is yours; Fig.4 provides an overview of various areas of network management functionality and highlights products you should consider for each requirement.

EMA: Digital's Enterprise Management Architecture

Traditionally, network management has focused on the fault and performance management of the physical links: modems, cables, multiplexers and so on. But Digital views this as just part of a bigger requirement — *enterprise* management, which goes beyond network components, beyond voice and data networks, to the management of the systems, applications and data that reside on the network. This is also reflected in the approach of the International Standards Organisation (ISO): it has defined five standard functions for the management of distributed, multi-vendor information networks: configuration, fault, performance, security, and accounting.

Fig. 1



The Executive *of EMA provides the operating environment and the interfaces required for managing the environment. The Executive includes a Management Information Repository (MIR); it collects data from components and stores it in a consistent format.*

Access Modules *provide the link to manage specific network entities such as terminal servers, systems and applications.*

Functional Modules *are plug-in applications that address the five OSI-defined management areas: configuration, fault, performance, security, and accounting.*

Presentation Modules *integrate all this information through a common user interface, across different presentation devices: Windows, terminals, and so on.*

Digital's Enterprise Management Architecture (EMA) addresses these standard, ISO-defined functions via the growing POLYCENTER Network Manager (DEC Management Control Centre) family of enterprise management products. You can picture the relationship between EMA and POLYCENTER Network Manager as being similar to that between DNA (the Digital Network Architecture) and DECnet (the family of products that implement DNA); EMA is an architecture and POLYCENTER Network Manager is the family of products that implement EMA.

A helping hand

Implementing multi-vendor network management tools can be a daunting task the first time round. What should you monitor, how should you report events, what actions should you take?

To help you deal with this initial workload, and to improve the effectiveness of your management tools and operations staff, Digital has created the EMA/POLYCENTER Network Manager Implementation Service. A Digital Network Engineer will become part of your team, adding help when you need it most, thus avoiding time-wasting and costly mistakes. Contact your local Digital Sales Office for more information.

POLYCENTER Network Manager Packages

This release of POLYCENTER Network Manager sees the packaging of the software changed to make it simpler and more flexible. There are now three basic software packages (Director, Basic Management System BMS, and Enterprise Management Station EMS) plus a number of *à la carte* Management Modules.

POLYCENTER Framework V1.2

TOWARDS THE INTELLIGENT, SELF-MANAGING NETWORK

The first management product in the POLYCENTER Network Manager family is POLYCENTER Framework V1.2; this latest version runs under ULTRIX/RISC as well as VMS, and provides the foundation — Applications Programming Interfaces (APIs), basic management applications, consistent user interface, common structure for management information, and so on — required to manage the enterprise environment. Under EMA, the director components of presentation, function and access are separated into modules (see Fig.1): POLYCENTER Framework includes a number of these modules… see the panel *POLYCENTER Framework Modules: A closer look.*

Adding to POLYCENTER Framework

Further modules are included with the POLYCENTER Network Manager Basic Management System, and Enterprise Management Station packages (*see below*); but they can be added as optional modules to POLYCENTER Framework if you require a specific Network Management solution.

In addition, a well-defined open interface allows independent developers to build their own modules and thus extend the functionality of the POLYCENTER Network Manager product family. Digital has links with the following well-established third parties who are developing management modules specifically for their hardware or systems on top of the POLYCENTER Network Manager platform: Alcatel, Apple, Bbn, Chipcom, Codex, Infonet, Newbridge, Olivetti, Proteon, Stratacom, System Center, T.E. Concepts, Vitalink, Wellfleet.

POLYCENTER Network Manager Basic Management System

FOR MANAGING OPEN NETWORKS

POLYCENTER Network Manager Basic Management System (BMS) is the next step up from the entry-level Director package. This includes the POLYCENTER Framework components described above and adds the following:

Function Modules (FMs)

- *Historian FM:* Enables users to collect and time-stamp entity attribute data. The resulting historical attribute data is available for use by other management modules. Users can define the data to be collected as well as the collection intervals.
- *Export FM:* Writes attribute data (historical as well as current) to an Rdb database located anywhere in the network. Exported data can be used to generate reports or other administrative applications that require access to network management data.
- *Performance Analyser FM:* Calculates statistics for selected DECnet (Phase IV and V) and Bridge entities. These statistics can be used in conjunction with the Alarms FM to set thresholds for triggering alarms as well as for network planning and optimisation purposes.
- *Alarms FM:* Provides the ability to notify network managers when alarm conditions have been detected in the network. When an alarm condition is detected, a user-written command procedure is queued for execution.

POLYCENTER Framework Modules: A closer look

Executive Function Modules (FMs)

- *Control FM:* Provides access to primitive directives for observation and control of managed entities.
- *Registration FM:* Manages data by identifying each entity in a network. It also defines and manages a set of common reference attributes for all entities. Allows multiple POLYCENTER Network Manager systems to share the same view of entity configurations.
- *Domain FM:* Works in conjunction with the Registration FM to enable users to define spheres of management interest. Domains may contain other domains as well as reference other domains. Users can set up hierarchical domains and navigate through the managed network from a top-down view.

Access Modules (AMs)

- *DECnet Phase IV AM:* Manage DECnet Phase IV entities such as nodes, circuits, lines, and objects. Provides an access path to and information about the entities it supports. It supports one global entity class, NODE4, and a number of child entity classes such as lines and circuits.
- *Sample AM:* A Sample Access Module is included as part of the POLYCENTER Framework. The Sample AM implements a single management directive, the SHOW directive, for the DECnet Phase IV node entity and associated line sub-entity.
- *TCP/IP SNMP AM:* SNMP has become the de-facto standard for managing TCP/IP network components. Associated with SNMP AM is a standardised set of manageable objects defined in the Management Information Base (MIB).
- Support is included for MIB2 and over 30 vendor MIB extensions (for products from companies such as CHIPCOM, WELLFLEET, CISCO and SYNOPTICS0, together with a MIB translation utility. There is also support for SNMP generic traps and PING.
- *Circuit AM:* Implements the NMF (Network Management Forum) circuit object definition, enabling lines and circuits to be manageable objects.
- *Ethernet Station AM:* Provides looptest and display of generic Ethernet devices that support: MOP REQID, MOP SYSID, MOP Counters, Ethernet V2 LOOPBACK, IEEE802.3 XID, or IEEE802.3 TEST.

Presentation Modules (PMs)

- *Iconic Map PM:* Enables users to interact with the POLYCENTER Framework using DECwindows. Commands as well as management data can be accessed by selecting icons representing managed domains and entities in a map window, and through the use of pull-down command windows.
- *Forms and Command Line (FCL) PM:* Supports two modes of operation, Command Line Mode and Forms Interface Mode.
- FCL Command-Line Mode is a terminal-based user interface. It is compliant with Digital's NCL, the command line syntax used for DECnet network management commands. The Forms Interface Mode provides a screen-based user interface, using forms and list input and output techniques.

POLYCENTER Framework VMS V1.2a	SPD 32.46
CONOLD ✓ CONDIST ✓ 14 DAYS ✓	
LICENCE	QL-VM9A9-AA
MEDIA	QA-VM9AA-H5 (TK50)

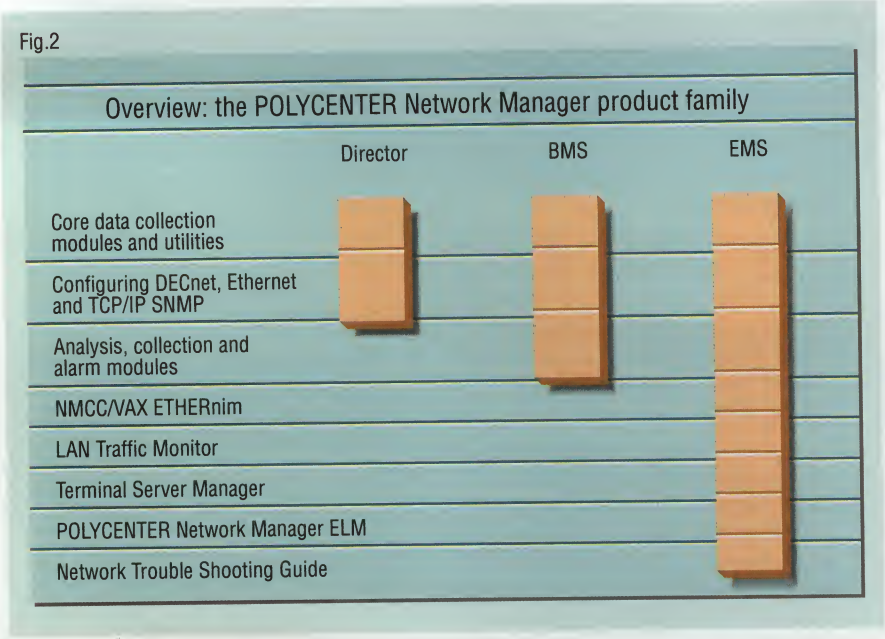
Required software: VMS V5.4–V5.5, DNS for global naming.

POLYCENTER Framework ULT/RISC V1.2a	SPD 32.46
CONOLD — CONDIST — 14 DAYS ✓	
LICENCE	QL-GU3A8-AA
MEDIA	QA-GU3AA-H5 (TK50)

Required software: ULTRIX/RISC V4.2 or V4.2a.

Network Management Products *(continued)*

Fig.2



POLYCENTER Network Manager Enterprise Management Station

STRATEGIC ENTERPRISE WIDE MANAGEMENT

If you want the latest, easy to-use network management tools, yet wish to add the specific capabilities of well-established, pre-EMA network management software from Digital — for example, LAN Traffic Monitor (LTM) — while staying within the EMA framework, the POLYCENTER Network Manager Enterprise Management Station (EMS) is the right answer. This package provides the POLYCENTER Network Manager Basic Management System (BMS) and, in addition, enables you to install and run a tool such as LTM from a single CPU, with a common DECwindows user interface, at a price that's significantly lower than the sum of the individual software components. This packaging also provides a smooth and cost-effective transition path from stand-alone products to the EMA-compliant products that will eventually succeed them.

POLYCENTER Network Manager EMS Additional Modules

POLYCENTER Network Manager EMS is available for VMS only and offers additional packaged Management Modules over POLYCENTER Network Manager BMS. Most of these additional Management Modules can be purchased as options to go with POLYCENTER Network Manager BMS or the POLYCENTER Framework on either VAX VMS or ULTRIX/RISC platforms.

- *POLYCENTER Network Manager Extended LAN Manager (ELM) AM:* This new Access Module allows users at a host to configure, manage, monitor, control and observe any LAN Bridge 150/200, DECbridge 5XX/6XX, DECconcentrator 500 and selected third party bridges in the Extended LAN and FDDI network.
- *POLYCENTER Network Manager Extended LAN Manager (ELM) FM:* This new Functional Module is used in conjunction with the previous AM to provide automatic device registration and autotopology of FDDI ring map and LAN Bridge spanning tree.
- *Terminal Server AM (TS AM):* This new AM allows management of Digital's Terminal Server products (DECserver 200, 300 etc.). This product is VMS only.

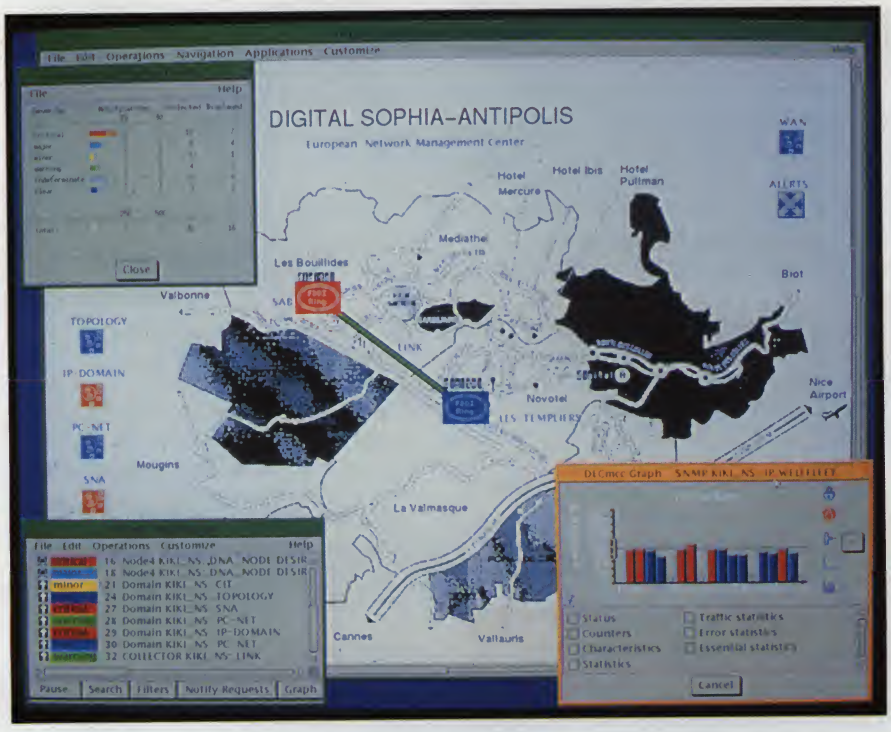


Fig 3. Scanned image backdrops can bring your network to life.

POLYCENTER N.M. BMS VMS V1.2a	SPD 32.48
CONOLD ✓ CONDIST ✓ 14 DAYS ✓	
LICENCE	QL-YSUA9-AA
MEDIA	QA-YSUAA-H5 (TK50)

Required software: VMS V5.4–V5.5 (+ RDB Runtime, CDD/Plus DTR + DECgraph).

POLYCENTER N.M. BMS U/R V1.2a	SPD 32.48
CONOLD — CONDIST ✓ 14 DAYS ✓	
LICENCE	QL-GU5A8-AA
MEDIA	QA-GU5AA-H5 (TK50)

Required software: ULTRIX/RISC V4.2 or V4.2a (+ ULTRIX/SQL & Ingres Tools).

POLYCENTER N.M. EMS VMS V2.2a	SPD 31.88
CONOLD — CONDIST ✓ 14 DAYS ✓	
LICENCE	QL-YFVA9-AA
MEDIA	QA-YFVAA-H5 (TK50)
or	QA-YFVAA-HM (Tape)

Required software: VMS V5.4–V5.5, DECnet-VAX (+ Rdb Runtime, CDD/Plus & DECgraph).

POLYCENTER Network Manager Packages	Order Number	Presentation Modules	Access Modules	Function Modules	VMS Point Products
	VMS ULTRIX/RISC	Forms[1] & CL Iconic Map Notification PM	DECnet Phase IV DECnet/OSI TCP/IP SNMP 802.3/Ethernet Circuit Data Collector Enhanced Bridge Concentrator FDDI Terminal Server	Control Registration Domains Autoconfiguration – DECnet – TCP/IP – Bridge – FDDI Alarms Notification FM Historian Exporter DECnet/Bridge PA TCP/IP PA Canned PA Reports TCP/IP Diag Assist	ETHERnim LTM TSM Nwt Trouble Guide
POLYCENTER Framework	*QL-VM9A9-AA* QL-GU3A8-AA	●●	●●●●●	●●●	
POLYCENTER Network Manager Basic Management System (BMS)	*QL-YSUA9-AA* QL-GU5A8-AA	●●●	●●●●●●	●●● ●●●●[2 2]●●●●●●	
POLYCENTER Network Manager Enterprise[1] Management Station (EMS)	*QL-YFVA9-AA*	●●●	●●●●●●●●●●	●●● ●●●●●●●●●●●	●●●●
POLYCENTER Network Manager Option Packages – Configuration – Fault Diagnostic – Historical Data – Performance Statistics – Notification	*QL-MDJA9-AA*/QL-MDKA8-AA *QL-MDLA9-AA*/QL-MDMA8-AA *QL-MDNA9-AA*/QL-MDPA8-AA *QL-MDQA9-AA*/QL-MDRA8-AA *QL-MDSA9-AA*/QL-MDTA8-AA	●	●	●●●[2 2]● ●● ●●● ●●	
POLYCENTER Network Manager Extended LAN Manager (ELM) – AM – FM	*QL-GX8A9-AA*/QL-MGUA9-AA *QL-GX9A9-AA*/QL-MGVA9-AA		●●●	●●[3]●	
POLYCENTER Network Manager Terminal[1] Server AM (TSAM)	*QL-GVTA9-AA*		●		
POLYCENTER Network Manager Developer's Toolkit	*QL-YSWA9-AA* QL-GU7A8-AA				

1 VMS only 2 Requires ELM AM 3 Only the Bridge PA

Fig 4. POLYCENTER Network Manager functionality choice.

Please refer to Fig.4 for the full list of extra Management Modules.

POLYCENTER Network Manager V1.2 enhancements

In addition to the improvements already mentioned, POLYCENTER Network Manager V1.2 offers the following:

- All documentation is available in Bookreader format for easy access
- The VAX Distributed Name Service (DNS) is now optional as local 'namespace' can be used, making POLYCENTER Network Manager easier to install and setup.
- Scanned image can be backdropped on POLYCENTER Network Manager maps to bring your network topology to life. See Fig.3 for an example from Digital's network.

New! POLYCENTER SNA Manager

Pure SNA networks are a thing of the past. Network Managers at IBM sites now have to contend with a new range of 'open' standards and protocols, and non-SNA devices. The connectivity may be complex, but the real problems arise with Network and System Management in a multi-vendor environment.

With the release of POLYCENTER SNA Manager, Digital is continuing to deliver against its commitment to provide integrated management solutions for Open and SNA networks. This extends our integrated management into the IBM SNA network, while allowing network and system mangers to manage from the environment they are most familiar with: POLYCENTER Network Manager or NetView.

The POLYCENTER SNA manager enables the POLYCENTER Network Manager BMS to manage IBM SNA network resources remotely. Peer-to-peer, bi-directional passing of commands, responses and events takes place between the Digital and IBM network management systems.

Stand-alone management tools

The products described below are well-established, pre-EMA VMS network management tools in their own right. They are included in the cost of POLYCENTER Network Manager Enterprise Management Station, but may also be purchased as stand-alone tools independent of EMA.

LAN Traffic Monitor (LTM)

LAN Traffic Monitor is a tool used in multi-vendor environments to analyse the utilisation of an extended LAN.

Network Management Products *(continued)*

- Monitors performance and bandwidth utilisation of multi-vendor Ethernet/IEEE 802.3 LANs.
- Provides an up-to-the-minute graphic display of LAN utilisation.
- Displays network traffic by system and by protocol, independent of vendor.

NMCC/VAX ETHERnim

NMCC/VAX ETHERnim enables you to locate and correct faults, and maintain an up-to-date configuration for your multi-vendor extended LAN.

- Builds a permanent database containing basic information about each node directly connected to the local area network.
- Provides a means of path-testing to ISO levels I and II to (multi-vendor) nodes on the Ethernet and to DNA network application and user layers for any node running Phase IV.

Other POLYCENTER Network Manager products

The following products are not in any of the base POLYCENTER Network Manager packages, and are available to fulfil particular network management requirements.

POLYCENTER Network Manager Developer's Toolkit

The POLYCENTER Network Manager Developer's Toolkit provides the necessary documentation, software utilities, and sample modules needed for anyone to develop POLYCENTER Network Manager Access and Functional Modules (AMs and FMs).

POLYCENTER Network Manager Management Station for ULTRIX

The POLYCENTER Network Manager Management Station for ULTRIX (MSU) enables you easily to manage either a TCP/IP network and SNMP (Simple Network Management Protocol) or a DECnet Phase IV network and the NICE (Network Information Control and Exchange) protocol.

POLYCENTER Network Manager WANdesigner

POLYCENTER Network Manager WANdesigner is an interactive VMS product that enables users to design new WANs or evaluate changes to existing ones based on cost considerations, equipment, application data and performance requirements. Changes to existing networks can be planned in advance and alternative designs can be generated for comparison purposes. Key benefits include:

- Time savings: Eliminate the trial-and-error approach to network design.
- Cost savings: Optimise existing configurations, and provide 'what if' planning for future expansion.

LAN Traffic Monitor V1.2 SPD 27.80

CONOLD — CONDIST ✓ 14 DAYS ✓

LICENCE	QL-VEHA9-AA	
MEDIA	QA-VEHAA-H5	(TK50)
or	QA-VEHAA-HM	(Tape)

Required Software: VMS V5.2–V5.5, DECnet-VAX.

POLYCENTER SNA Manager V1.0 SPD 43.22

CONOLD — CONDIST ✓ 14 DAYS ✓

LICENCE	QL-MQXA9-AA	
MEDIA	QA-MQXAA-H5	(TK50)
or	QA-MQXAA-HM	(Tape)

Required Software: OpenVMS V5.4 - V5.5-2, POLYCENTER Network Manager BMS V1.2 - V1.2-a or EMS V2.2, OpenVMS/SNA V2.1 or correct DECnet/SNA gateway, DECnet/SNA APPC/LU6.2 PI V2.2, OpenVMS DECwindows V2.0, plus IBM software - see SPD for full details.

POLYCENTER N.M. ELM AM U/R V1.2 SPD 38.67

CONOLD — CONDIST ✓ 14 DAYS ✓

LICENCE	QL-MGUA8-AA	
MEDIA	QA-MGUAA-H5	(TK50)

Required Software: ULTRIX/RISC V4.2 or V4.2a, plus either POLYCENTER Framework for ULTRIX/RISC or POLYCENTER Network Manager for ULTRIX/RISC BMS. (See SPD for details.)

POLYCENTER N.M. TSAM for VMS V1.2 SPD 31.26

CONOLD ✓ CONDIST ✓ 14 DAYS ✓

LICENCE	QL-GVTA9-AA	
MEDIA	QA-GVTAA-H5	(TK50)

Required Software: VMS V5.4-V5.5, plus either POLYCENTER Framework or POLYCENTER Network Manager BMS.

POLYCENTER N.M. ELM AM VMS V1.2 SPD 31.33

CONOLD ✓ CONDIST ✓ 14 DAYS ✓

LICENCE	QL-GX8A9-AA	
MEDIA	QA-GX8AA-H5	(TK50)

Requires Software: VMS V5.4–V5.5, plus either POLYCENTER Framework, POLYCENTER Network Manager BMS or POLYCENTER Network Manager EMS (See SPD for details.)

POLYCENTER N.M. WANdesigner V1.0 SPD 32.45

CONOLD ✓ CONDIST ✓ 14 DAYS ✓

LICENCE	QL-YMGA9-AA	
MEDIA	QA-YMGAA-H5	(TK50)
or	QA-YMGAA-HM	(Tape)

Required Software: VMS V5.3–V5.5, DECforms R/T V1.1, DEC GKS R/T V4.1.

POLYCENTER N.M. Mgmt. Stn. U/R V1.1a SPD 33.18

CONOLD — CONDIST ✓ 14 DAYS ✓

LICENCE	QL-YUGA8-AA	
MEDIA	QA-YUGAB-H5	(TK50)
or	QA-YUGAB-HM	(Tape)

Required Software: ULTRIX V4.1–V4.2.

NMCC/VAX Ethernim V2.3 SPD 26.96

CONOLD — CONDIST ✓ 14 DAYS ✓

LICENCE	QL-514A9-AA	
MEDIA	QA-514AA-H5	(TK50)
or	QA-514AA-HM	(Tape)

Required Software: VMS V5.3-V5.5, DECnet-VAX.

Communications

Digital's wide-area networking products provide a seamless extension of local area networks, allowing users to easily access information anywhere within the enterprise.

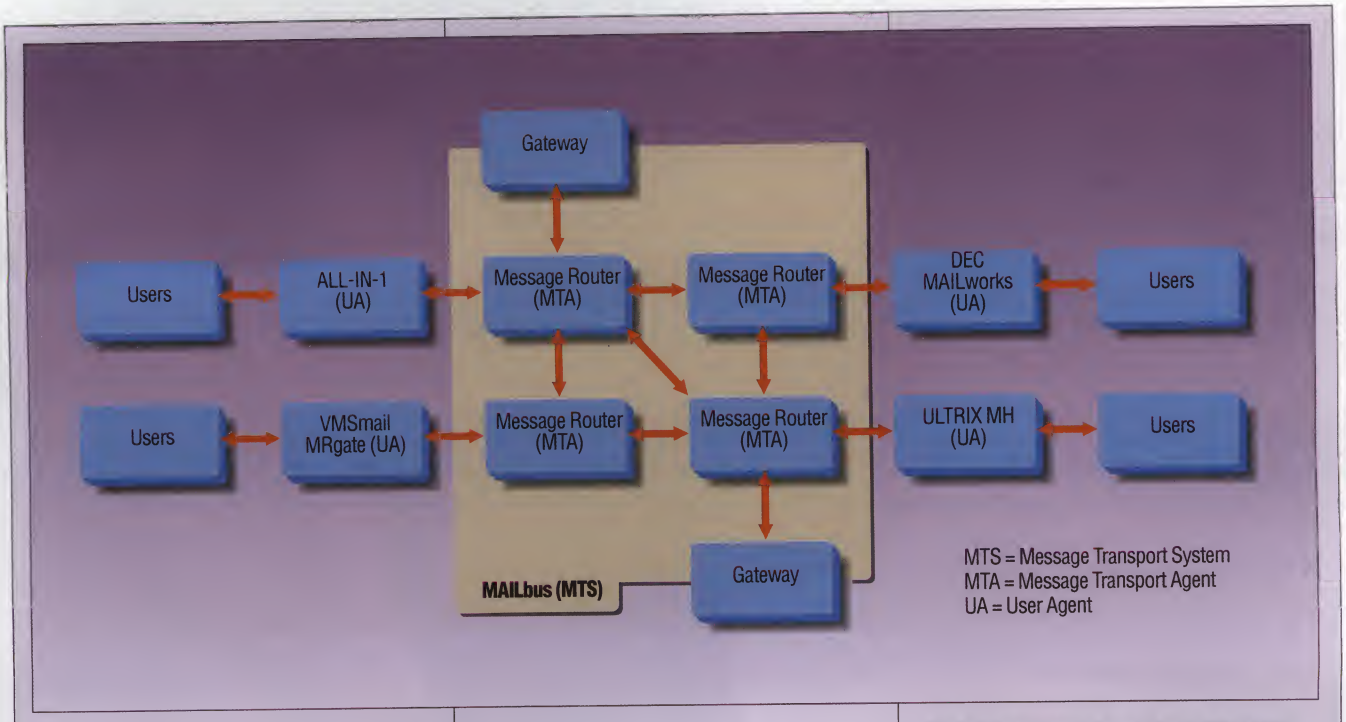
Easynet, our own vast internal network, has served as our model for wide-area networking. It is one of the largest private data networks in the world, serving more than 50,000 CPUs on 498 sites in 31 countries. Of Digital's 114,000 employees worldwide, more than 100,000 are corporate-wide mail users. As we continue to grow Easynet, we are constantly improving its capabilities with product enhancements we can then offer to our customers. The products described over the next few pages are the results of this experience.

Customers who have, over the years, based their growth on the single-standard Digital hardware platform will tend to take transparent, inter-enterprise communications for granted. Users with the need for mixed networks including IBM mainframes, personal computers and UNIX systems can also link into this seamless computing environment. The *Insights* page overleaf provides an overview of the X.400 technology which forms the backbone for this communications capability.

Help us to help you: Don't forget!
We need the name of a system manager and the CPU serial number whenever you order software.

INSIGHTS

X.400: A communications backbone



Digital's implementation of the X.400 model.

In order to remain competitive or to accomplish more with fewer resources, organisations are recognising the importance of improving an individual's access to and ability to share information. Organisations also are recognising the need to collaborate as cross-functional teams. This requires establishing a messaging utility to facilitate information access and sharing in a multi-vendor environment.

A solution for this multi-vendor networking environment is provided by the CCITT X.400 Recommendations, an international standard for electronic message-handling systems. The International Telegraphy and Telephony Consultative Committee (CCITT) creates internationally recognised recommendations that are used worldwide. Any message-handling system that complies with these recommendations can communicate with all other message-handling systems that comply with the same recommendations. Digital's MAILbus complies with the X.400 recommendations and therefore provides the capability to communicate and exchange messages in this diverse heterogeneous environment.

Understanding the X.400 model.

The X.400 model for message-handling systems identifies two components that are in all message-handling systems: the Message Transfer Agent (MTA) and the User Agent (UA).

The MTA is the part of the message-handling system that transfers the messages from one place to another. A group of connected Message Transfer Agents forms a Message Transfer System (MTS). A message is transferred from MTA to MTA across the network from its start to its destination. Message Router, the base component of MAILbus, is Digital's MTA.

The User Agent is the part of the message-handling system that people use to send and receive messages. ALL-IN-1 Electronic Messaging is Digital's most widely used User Agent.

When a user sends a message, the User Agent passes the message to the MTA using a protocol that both the User Agent and the MTA understand. The MTA passes the message to the next MTA using a protocol that both MTA's understand. When the message reaches its destination, the MTA passes it to the User Agent, again using a protocol that both the MTA and the User Agent understand.

Digital also recognises the need to exchange messages with proprietary networks. To facilitate message exchange with non-X.400 networks, a gateway function has been provided. In addition, an Application Programmer Interface (API) called the Message Router Programmer's Kit is available to provide the capability to write custom User Agents and gateways between the VAX Message Router and any messaging system or application.

Different User Agents for different needs.

Digital recognises that various users of mail have different needs. People using a network have varying degrees of needs for network services. Some people, or their functions, require simple mail services while others may need a broad spectrum of office integration capabilities.

Accordingly, Digital provides a comprehensive suite of User Agent products to choose from:

- Simple mail products
- DEC MAILworks (formerly ALL-IN-1 Mail)
- ALL-IN-1 Integrated Office System Server for VMS V3.0

For information on Digital's mail products, see the *Workgroup Computing* section of this catalogue.

X.25-Based Services

PACKET SWITCHED NETWORK CONNECTORS

Traditionally, most data networks have made use of leased lines to connect geographically dispersed host computers. While this is cost-effective for a large amount of network traffic, there are many situations where this approach is inflexible or too expensive; often, you may need to communicate with specified machines on an irregular basis, or with quantities of traffic that do not justify the cost of such a point-to-point connection. There is also a common need to communicate with other enterprises which are not part of your organisation.

The Connection

Public Packet Switched Data Networks (PSDNs) are the computer's analogy to the telephone. Once connected to a PSDN, calls can connect to any other number on that network, or on another PSDN that is cross-connected to it (usually for international data communication). Calls can be normally or reverse-charged, and the customer pays a tariff related to time of day, number called, and the duration and amount of data.

The tariff structures vary considerably between public PSDNs, but the data charges are generally more significant than the time or distance factors.

The PSI Link

Digital's Packet System Interface (PSI) products allow suitably configured Digital systems to connect to packet-switched data networks that conform to the CCITT Recommendation X.25. (CCITT is the International Telephone and Telegraph Consultative Committee, an advisory committee established under the United Nations to recommend worldwide standards.) VAX PSI also supports International Standards 7776 and 8208, which standardise the protocols described in the CCITT recommendations.

X.25 Compatibilities

X.25 networking is now well established worldwide for the interconnection of computer systems and terminals. It provides network users and operators with an effective way of providing multi-vendor and multi-country information transfer. Digital's range of products provide X.25 network connections which allow local and remote connection of PCs, workstations or large clusters to communicate transparently over an X.25 network.

Because many networks contain non-Digital systems, Digital fully supports the concept of co-operative computing. When X.25 is used as the data link protocol between Digital and non-Digital systems, all upper-level protocols (such as file transfer protocols) must be written by the user, or purchased separately. Digital sells a variety of products that achieve such multi-vendor communication, as shown in this article.

Clients \ Native and Connector Nodes		Phase V		Phase IV	
		X.25 Gateway 100/500	DEC X.25 Native Mode ULTRIX	VAX PSI	X.25router 2000
		Connector only	Native only	Native & Connector	Connector only
Phase V	DECnet/OSI	✓	DEC X.25 Native Mode ULTRIX is Native Mode only	✓	✓
	DEC X.25 Gateway Client	✓		✓	✓
Phase IV	PSI Access VMS	✓		✓	✓
	DEC X.25 Access for ULTRIX	✓		✓	✓

X.25 product availability matrix for Phase V and Phase IV networks.

Connecting to the Packet Switched Network

Connection to a Packet Switched Data Network is either through a VAX running VAX PSI software (with an appropriate synchronous communications interface), or via an X.25router or Gateway. The X.25router and Gateways provide a dedicated X.25 access service for any DECnet host machine connected to an Ethernet — and beyond.

Once a connection has been made, other computers on the DECnet network can connect to the X.25 service using client software. There are products for VMS and ULTRIX and with the migration to OSI, both DECnet/OSI as well as the traditional Phase IV products.

Digital's PSI products allow terminal communications according to CCITT recommendations X.3, X.28 and X.29. Remote terminals may access the VAX, and local terminals on the VAX may access remote computers. Extensive accounting, network management and security features are provided to allow the network manager to exercise appropriate control of X.25 services.

Building on your X.25 investment

One of the most common uses of X.25 on Digital customer sites is to carry DECnet traffic. With the release of DECnet/OSI Phase V, DECnet now uses industry-standard Open Systems Interconnect protocols to communicate with Digital (and other manufacturers') computers both inside and outside your enterprise. Please see the ULTRIX and OpenVMS Networking pages of the Base Systems section for information on DECnet/OSI and the functions included in these products.

In addition, there are a variety of other products that can build on your X.25 connection investment today. These are:

- Message Router X.400 Gateway — for electronic mail and document interchange.
- DEC/EDI — for the exchange of trading information between software applications in different enterprises.
- OSAK (OSI Applications Kernel) and FTAM (File Access and Transfer) are included with DECnet/OSI for OpenVMS.

NEW PRODUCT

PATHWORKS X.25 for DOS

VAX PSI

VAX PSI allows any VAX with a suitable synchronous device to connect directly to CCITT X.25 Data Terminating Equipment (DCE). It will act not only as a direct connection but also as a connector node for both Phase IV Access and Phase V Clients.

DECnet/OSI for OpenVMS gives you both the full X.25 media and the Wide Area Network Device Drivers (WANDD); just purchase the licence.

VAX PSI Access

VAX PSI Access is available if you are using Phase IV DECnet and will connect to any Digital X.25 Gateway or X.25 router, or a VAX running PSI. Purchase both the licence and media kit.

For Phase V DECnet/OSI for OpenVMS users, the licence and media for PSI Access/Client is included with DECnet/OSI.

DEC X.25 Access for ULTRIX

DEC X.25 Access for ULTRIX software provides X.25 connectivity for ULTRIX V4.x systems using any X.25router or X.25 Gateway; it also permits access via a VMS machine running VAX PSI Multihost software. This product is for Phase IV DECnet users.

ULTRIX/RISC and other locally connected UNIX systems can now inter-operate with remote systems from other vendors who've implemented TCP/IP over X.25.

DEC X.25 Gateway Client ULTRIX

The DEC X.25 Gateway Client software is licensed as a component of DECnet/OSI for ULTRIX, which is a prerequisite for its use. Gateway Client allows a DECnet-ULTRIX system on a LAN to access PSDNs through Digital X.25 connector nodes such as the DEC X.25gateway 100/500 or X.25router 2000 or a VAX PSI Multihost. This product is for Phase V users and the licence is included with DECnet/OSI for ULTRIX; just purchase the media kit.

DEC X.25 Native Mode for ULTRIX

Using DEC X.25 Native Mode and the prerequisite synchronous communications hardware and device drivers, an ULTRIX system can be connected directly to CCITT X.25 Data Circuit Terminating Equipment (DCE). The product also allows direct connection to equipment acting as DCE using the ISO 7776/8208 protocols. The term DCE refers to ISO point-to-point communications only. X.25 Native Mode does not provide any packet-switching exchange facilities.

DEC X.25 Native Mode supports process-to-process (X.25) and remote terminal-to-process (X.29) communication, DECnet/OSI communication in OSI-conformant WANs, and communications with other Internet End Systems over X.25.

The product enables transmission of IP (Internet Protocol) datagrams over X.25 switched virtual circuits to remote DTEs with comparable support. This means that standard TCP/IP protocol applications such as ftp, smtp, rlogin, telnet, can communicate over an X.25 PSDN.

New - PATHWORKS X.25 for DOS

The PATHWORKS X.25 product extends DOS and Windows clients PATHWORKS connectivity to X.25 networks. It will connect a single, remote, DOS PC through X.25 using DECnet as transport. The product adds on to PATHWORKS for DOS V4.1/V4.1A and will support applications and services that run over DECnet. The connection to the X.25 network is made via the PATHWORKS server (VMS or ULTRIX) connection to the X.25 network.

The right to use PATHWORKS X.25 (DOS) is granted by the PATHWORKS for DOS client licence. The media required is QA-008AA-HB/I. An X.25 EICON PC card (DS206-AA or DS206-CA) and modem cable is also required. Please see the Index at the back for further order details.

VAX PSI V4.3 — 3U — SPD 25.40 — CONOLD — — CONDIST ✓ — 14 DAYS ✓

CW — B C D E F G H J K L M N Q S T U V

QL-071A9-J

Required Software: VMS V5.1, 5.2, or 5.3, VAX WAN Device Driver Kit to support synchronous communications interface, or VAX ISDN with an ISDN device. DECnet-VAX required to support multi-host and DECnet circuit operation.

EXTRA DOCUMENTATION SETS — DOCS **QA-071AA-GZ**

MEDIA AND DOCS — TK50 5 Tape M — MEDIA **QA-071AA-H**

VAX PSI Access V4.3 — 3U — SPD 27.78 — CONOLD — — CONDIST ✓ — 14 DAYS ✓

CW — B C D E F G H J K L M N Q S T U V

QL-061A9-J

Required Software: VMS V5.1, 5.2, OR 5.3, DECnet, and access to VAX PSI or X.25 router.

EXTRA DOCUMENTATION SETS — DOCS **QA-061AA-GZ**

MEDIA AND DOCS — TK50 5 Tape M — MEDIA **QA-061AA-H**

DEC X.25 Native Mode RISC V1.1a — 3U — SPD 32.35 — CONOLD ✓ — CONDIST ✓ — 14 DAYS ✓

U/R — A C N S 2 3 4 D

QL-YSYA -AA

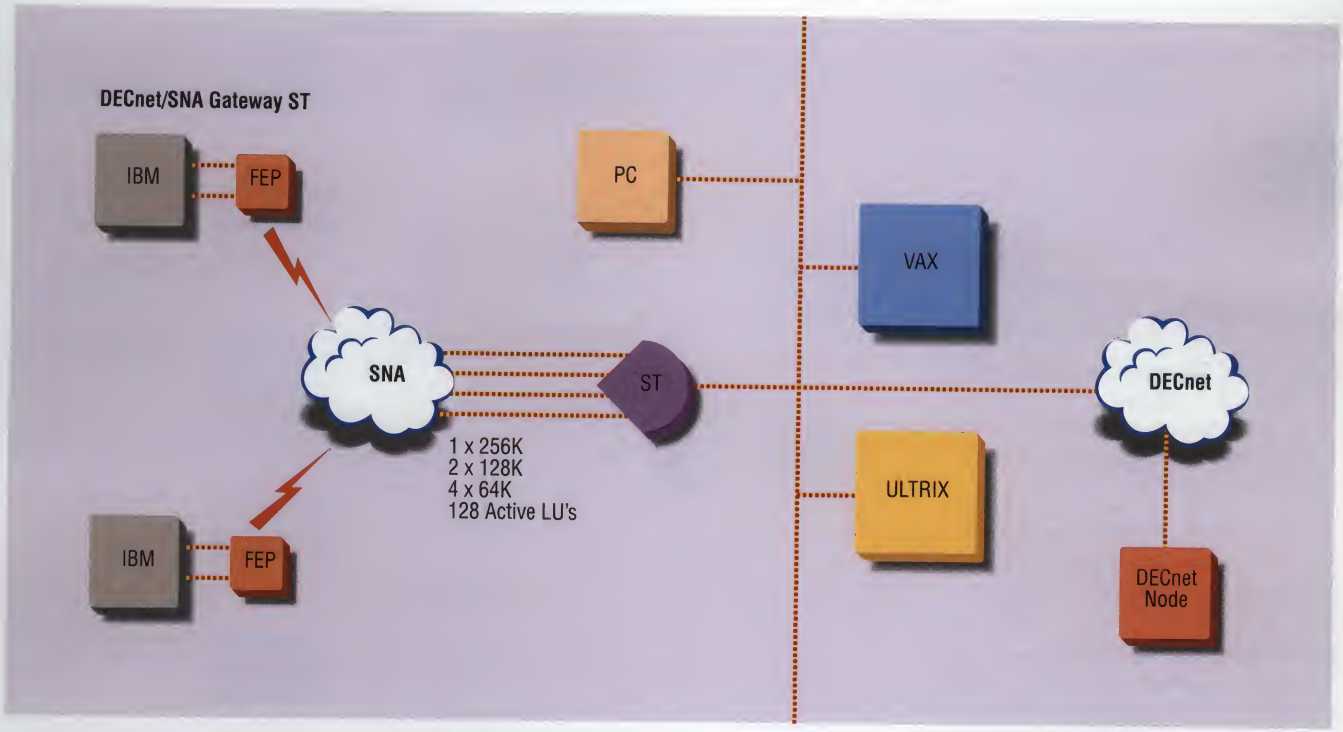
Required Software: ULTRIX V4.2 - 4.2a, WAN Device Drivers for ULTRIX V2.0.

EXTRA DOCUMENTATION SETS — DOCS **QA-YSYAA-GZ**

MEDIA AND DOCS — TK50 5 Tape M — MEDIA **QA-YSYAA-H**

IBM host communications

MAKING THE CONNECTION



In today's business environment, we are surrounded by an ever-increasing amount of information — and the need to move it effectively to wherever it is needed. Ideally, this should be done in a way which is simple and transparent to the users of the information, so that they can concentrate on the task in hand.

A significant proportion of Digital's customers have investments in IBM mainframe technology, and could benefit from the integration of the two computing environments. Digital has developed a broad set of products to allow an enterprise to capitalise on the strengths of both worlds.

Our approach has always been to provide a choice of connectivity options and a range of applications that can be used in conjunction with those options.

Transport products: The connection.
It is important to look at the connectivity considerations that are independent of the actual application involved. For example, where are the systems located? How many users wish to make use of the facility? What overall throughputs need to be achieved? These are questions that need to be addressed

Transport Selection Guide

Features	Transports (PU Type 2)			
	VMS SNA	DECnet/SNA Gateway SP	DECnet/SNA Gateway ST	DECnet/SNA Gateway CT
Single PU Emulated	✓	✓		
Multiple PU Emulated			✓	✓
Multiple Physical Links			✓	
Active Sessions	16-64	32	128	1020
Protocols: SDLC	✓	✓	✓	
Protocols: QLLC	✓			
Protocols: Channel				✓ Byteblock or selector
Speed & Lines	1x<64K	1x<19-2K	1x<256K or 2x<128K or 4x<64K	Direct Channel Speed
Supported Platforms	VMS	VMS & ULTRIX	VMS & ULTRIX	VMS & ULTRIX

VMS SNA V2.1a 3U SPD 27.01 CONOLD — CONDIST ✓ 14 DAYS ✓

TR R Q C P N M L K S J H B 2 G F E 3 4 D U V 5

QL-362A -AA

Required Software: VMS V5.4–V5.5, VAX WAN Device Drivers Kit. VAX PSI or PSI Access is required for X.25 support. See SPD for full details.

EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
DOCS QA-362AA-GZ	MEDIA QA-362AA-H

by Digital's choice of connectivity products. Because these products are responsible for the transport of application information, we refer to these as the transport product family.

VMS SNA

VMS SNA is a software product, layered on the VMS operating system, that provides a system to network connection over a synchronous communications line. It is suitable for low-volume applications that run on a single VAX system and require a single, direct link to the SNA network.

DECnet/SNA Gateway for Synchronous and Channel Transport

DECnet/SNA Gateway for Synchronous Transport is software that runs on dedicated server hardware providing network-to-network communications. Choose between the MicroServer or the low-cost MicroServer SP depending on the throughput and functionality required. The Transport Selection Guide will help you decide.

DECnet/SNA Gateway for Channel Transport is software that runs on the DEC Channel Server II, a dedicated hardware server that connects an 802.3 Ethernet to an SNA network via an IBM S/370 Channel. It is suitable for applications with heavy traffic between the DECnet and SNA environment.

Access products: The application.

Independent of your choice of connectivity option, a range of capabilities is available for exchanging information between Digital and IBM user communities.

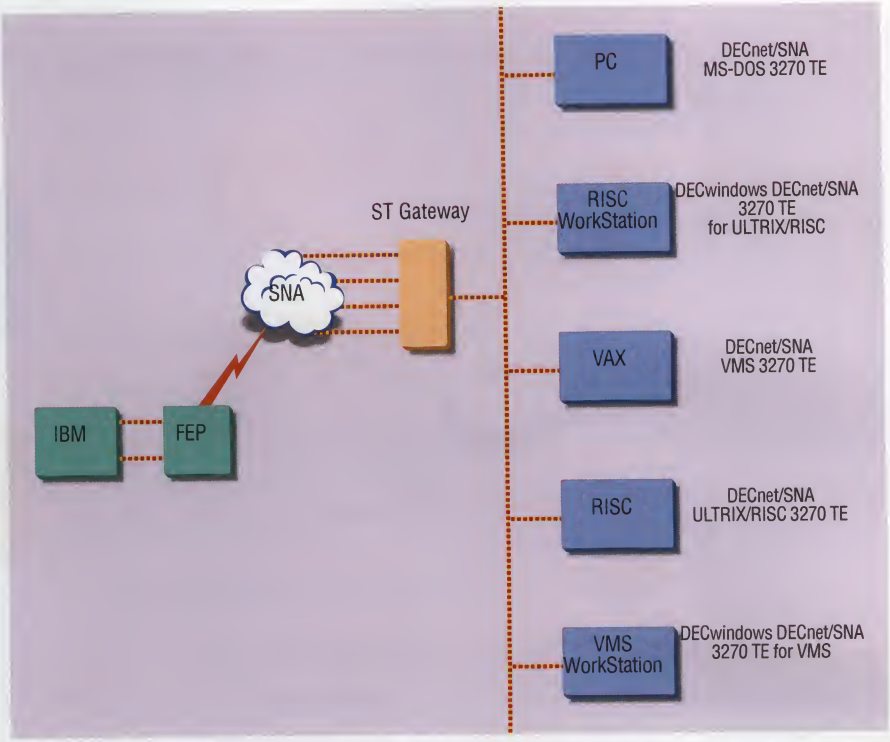
A selection of access products are detailed here. More products are listed in the back of the catalogue, or for greater detail please contact your local Digital office.

These access capabilities can be split into four functional areas, each of which consists of a portfolio of products:

Capability 1: Terminal Emulation.

Digital provides a range of terminal emulators: under VMS and ULTRIX there are both DECwindows and native emulators, and there is a native emulator for MS-DOS. All will work in conjunction with any of our gateways.

The DECnet/SNA VMS Distributed Host Command Facility (DHCF) access routine allows IBM 3270-class displays to access VAX systems.



Digital's family of 3270 Terminal Emulators gives the desktop of your choice access to your mainframe.

Capability 2: Data Exchange and File Transfer.

The DECnet/SNA VMS Printer Emulator (PrE) access routine allows suitably configured VAX systems to receive printable data from IBM host-based applications.

The DECnet/SNA VMS Remote Job Entry (RJE) access routine allows suitably configured VAX systems to function as SNA/RJE workstations capable of submitting batch jobs to an IBM host and receiving job output.

The DECnet/SNA Data Transfer Facility is a software product that provides bi-directional data transfer capabilities, initiated by either environment.

Capability 3: Mail.

The MAILbus pages in this section cover both Message Router/P for message exchange between IBM PROFS or IBM CIMS, and Message Router/S for message exchange between Digital and IBM Office Systems.

Capability 4: Database and Programming Interfaces.

VIDA for DB2 can be found in the Information Management section of the catalogue. It provides read-only access to IBM-based DBMS.

The DECnet/SNA VMS Application Programming Interface (API) supports many different types of session between VMS and applications running on an IBM host through its support of Logical Unit Type 0 (LU0) sessions.

DECnet/SNA MS-DOS 3270 TE V2.0 SPD 30.63

CONOLD — CONDIST — 14 DAYS ✓

LICENCE	QL-VFAAW-AA
MEDIA on 3.5" 720Kb Disk	QA-VFAAA-HB
on 5.25" 360Kb Disk	QA-VFAAA-HI

Required Software: PATHWORKS for DOS.
Required Hardware: A DECnet/SNA Gateway somewhere on your DECnet network. Graphics modes require EGA (128KB for 3279 emulation, or 256KB for 3192) or VGA card.

DECnet/SNA VMS 3270 Terminal Emulator V1.5 39 SPD 26.84 CONOLD — CONDIST ✓ 14 DAYS ✓

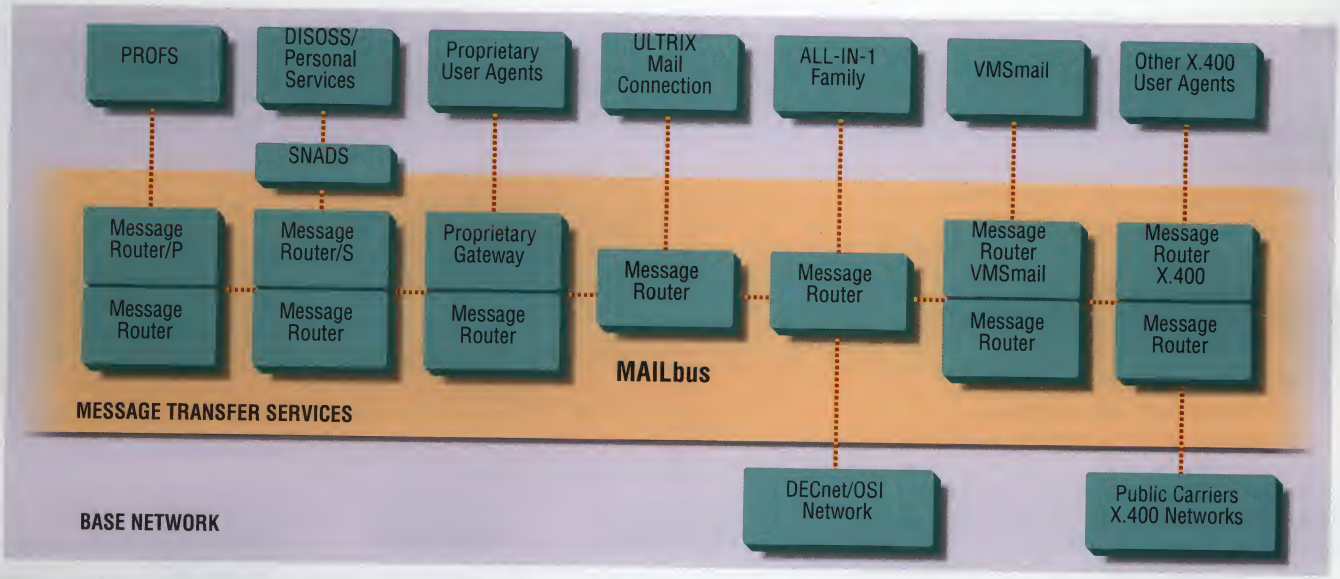
CW	B	C	D	E	F	G	H	J	K	L	M	N	Q	S	T	U	V
QL-454A9-J																	

Required Software: VMS V5.0–V5.5, DECnet and DECnet/SNA Gateway or VMS SNA.

EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
DOCS QA-454AA-GZ	MEDIA QA-454AA-H

MAILbus products

ACCESS TO THE WORLD



Digital's MAILbus products extend the power and reach of your organisation's communication systems, and help create an integrated user communication environment. MAILbus products can:

- Operate as Store and Forward Mail Message Routers.
- Provide seamless transfers between different electronic mail systems.
- Operate transparently with ALL-IN-1, VMSmail, X.400, PROFS (and CMS), SNADS (DISOSS) and several UNIX-compatible transfer agents.

Designed as add-ons to the VAX Message Router Software (which is the core store-and-forward mail handler), the MAILbus software products include:

VAXmail

VMS comes with a basic electronic mail facility called 'MAIL'. This product does not provide store and forward capabilities; it requires that the target user's host machine be operational at the time of sending. To enhance MAIL with this capability, and use other MAILbus products, use Digital's Message Router VMSmail Gateway.

ALL-IN-1

ALL-IN-1 comes bundled with the Message Router and an electronic mail sub-system.

Other Message Router products can be added to reach across to other mail environments.

X.400 Inter-Enterprise Mail

The Message Router X.400 Gateway provides a connection between your Digital systems and private and public mail systems that support CCITT standards. The Message Router X.400 software uses Gateway Directory Services to validate and address recipients of incoming mail, and to authenticate senders of outgoing mail.

IBM PROFS Office Systems

Message Router/P Gateway allows electronic mail and revisable and final-form documents to be transparently exchanged between the DECnet environment and IBM PROFS or IBM CMS in an SNA environment. Message Router/P need be installed on only one VAX in the DECnet Wide Area Network; from here it will serve all Digital systems that send or receive documents from the PROFS or CMS environments. Message Router/P uses an SNA Gateway as a link between the Digital and IBM environments.

IBM SNADS-based Office Systems

Message Router/S Gateway allows the transparent exchange of electronic mail, revisable and final-form documents, between Digital and IBM Office Systems. IBM Systems 36, 38 and the IBM 5520 also support SNADS, through the IBM mainframe.

ULTRIX Mail Connection

ULTRIX Mail Connection allows users of Digital ULTRIX to exchange electronic mail with Digital systems and other environments. Using standard MAILbus products, the ULTRIX user is able to communicate with X.400, SMTP and IBM Office Systems via a suitably equipped DECnet network.

VAX Message Router Program				SPD 26.33
LICENCE TYPE AVAILABLE				UPI 733
CONC	PERS	TRAD	CW	OTHER
—	—	—	✓	—

VAX Message Router Base V3.2	3U	SPD 26.33	CONOLD ✓	CONDIST ✓	14 DAYS ✓

CW	B	C	D	E	F	G	H	J	K	L	M	N	Q	S	T	U	V
QL-732A9-J																	

Required Software: VMS V5.4, DECnet-VAX V5.4. This product is included in ALL-IN-1 IOS.

EXTRA DOCUMENTATION SETS	MEDIA AND DOCS	TK50 5	Tape M
DOCS QA-732AA-GZ	MEDIA QA-732AA-H		

MAILbus 400 for ULTRIX

STANDARDS BASED WORLDWIDE ELECTRONIC MESSAGING

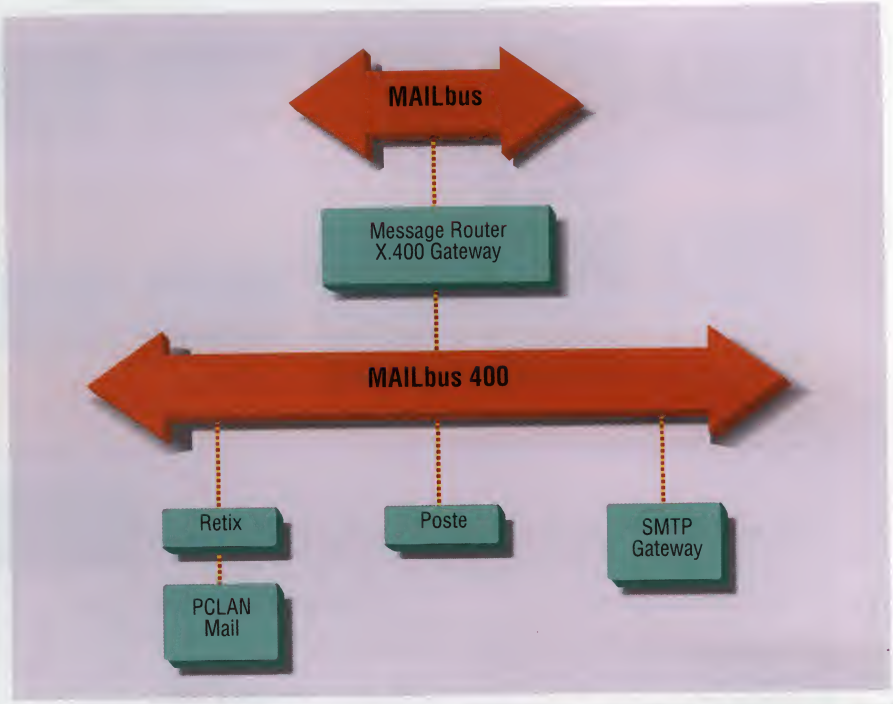
NEW PRODUCT

MAILbus 400 MTA for ULTRIX

MAILbus 400 for ULTRIX components are the first in a new family of products that provide a reliable messaging service based on the industry-standard 1988 X.400 Message Transfer Agent (MTA).

- Production quality, easy-to-manage, messaging system for information-sharing among Electronic mail users.
- Mail exchange gateway between traditional UNIX mail and the X.400 mail community.
- Allows support of automated document conversion when integrated with converters.

The MAILbus 400 and our other Enterprise Messaging Solution products are designed to work together and to accommodate other messaging applications through gateways and the implementation of industry standards. Standards allow you more vendor independence and assure you of maximum interoperability.



MAILbus 400 for ULTRIX provides a reliable messaging service based on the 1988 X.400 industry-standard.

MAILbus 400 Message Transfer Agent (MTA)

The MAILbus 400 MTA provides the messaging system based on the 1988 X.400 MTA standard. In addition it incorporates the X.500-based directory component that enables the MTAs to share routing information.

MAILbus 400 features include:

- Optional integration of CDA converters to enable use between different desktop applications.
- Conformance with EMA gives consistent management with POLYCENTER tools, thus minimising training.
- Supplied default settings get you up and running quickly.
- No single point of routing failure; automatic failover to alternate routes

MAILbus 400 Application Programming Interface (API)

The MAILbus 400 API gives application developers access to the messaging services of the MAILbus 400 MTA. It is an implementation of V2.0 X/Open Common Applications Environments specification.

MAILbus 400 Simple Mail Transfer Protocol (SMTP) Gateway

The SMTP Gateway is the product which enables the mail exchange between the traditional UNIX mail community and X.400 mail users. The gateway is able to utilise the backbone management facilities and to handle address translation through either the X.500-based routine directory or ad-hoc addressing.

MAILbus 400 SMTP G'way ULTRIX V1.0 SPD 41.59

CONOLD — **CONDIST** ✓ **14 DAYS** ✓

LICENCE	**QL-MR8A8-AA**
MEDIA	**QA-MR8AA-HM/5**

Required Software: ULTRIX/RISC V4.2a, DECnet/OSI for ULTRIX V5.1 (End System), MAILbus 400 MTA.

MAILbus 400 MTA for ULTRIX V1.0 **3U** **SPD 41.11** **CONOLD** — **CONDIST** ✓ **14 days** ✓

U/R **A C N S 2 3 4 D**	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS **TK50 5** **Tape M**
QL-MR6A -AA	DOCS **QA-MR6AA-GZ**	MEDIA **QA-MR6AA-H**

Required Software: ULTRIX/RISC V4.2a, DECnet/OSI for ULTRIX V5.1. **Optional Software:** X.25 and communications software - see SPD for more details.

Workgroup Computing

See also:

From the solid foundations of Integrated Office Systems (ALL-IN-1) developed in the 1980s, businesses now want an even broader set of solutions which will extend to all levels of their enterprise.

Digital can deliver products for use in electronic publishing, and our networking is second to none. But how have we responded to the working methods of people in the 1990s? Many users have implemented localised solutions for working, using PCs, LANs and servers. These have used PATHWORKS as their basis. Now users are demanding more from the systems:

- Connections with larger, geographically distributed teams.
- Effective team applications giving easy access to enterprise data, in a secure but flexible way.

This is **Workgroup Computing**. Digital has released key products, like TeamLinks, which successfully merge the worlds of the enterprise and user. Additionally we have forged relationships with Microsoft, Lotus and Apple to deliver the best solutions in the industry.

With such a wealth of offerings, Digital can supply you with products and services that will fit your business needs. See overleaf for a close-up on some of Digital's powerful desktop applications, and how they fit into today's workgroup computing environments.

Help us to help you: Don't forget!
We need the name of a system manager and the CPU serial number whenever you order software.

INSIGHTS

Working as a team

Digital's desktop applications cover the most commonly used multi-vendor products, operating systems, and applications for personal computing today. Built on Network Application Support (NAS) services, Digital's solutions support the Compound Document Architecture (CDA) framework for data and document interchange among systems from a variety of vendors.

Revisable information flowing between different desktops and departments is a reality when companies use Digital's integrated office and electronic publishing solutions. Unlike many office and publishing solutions from other vendors, which are geared toward individuals and isolated departments that use the same systems and software, Digital's networked solutions enable users on different systems throughout an organisation to share data and resources.

By distributing office and electronic publishing solutions across an entire computing environment, a company gains greater control over information. Increasing the accuracy and timeliness of data reduces the amount of work and money required to develop compound documents, and also preserves existing investments.

To meet the changing needs of office and electronic publishing systems users, Digital teams with other vendors for development and support of each other's products. These applications are available for a wide variety of desktops.

Product	Description	Platforms	For further information...
Adobe Illustrator from Adobe Systems Inc., Mountain View, California	Creates high-quality artwork. Includes features for freehand sketching, automatic tracing, and for finished artwork.	UNIX	See Page **19c**
ALL-IN-1 DESKtop	Enables users to take advantage of ALL-IN-1 IOS services.	MS-DOS, Macintosh, VMS	See Page **65**
ALL-IN-1 Integrated Office System (IOS)	Integrates enterprise mail and file sharing, word processing, and group services.	MS-Windows, MS-DOS, Macintosh, VT, DECwindows, VMS.	See Page **64**
DEC MAILworks (formerly ALL-IN-1 Mail)	Offers X.400 enterprise messaging.	MS-Windows, MS-DOS, Macintosh, VT, DECwindows, VMS.	See Page **62**
DECpresent	Creates, produces, and manages presentations.	VMS, UNIX, Sun SPARCstations.	See Page **18c**
DECquery	Supplies easy access to both corporate and PC LAN-based databases.	MS-Windows, MS-DOS, Macintosh, Motif, VMS.	See Page **106**
DEC VTX	Provides enterprise online reference libraries.	MS-Windows, VT, Motif, VMS.	See Page **69**
DECwrite	Creates and produces documents that combine text, images and data.	VMS, UNIX, OS/2, Sun SPARCstations, MS-Windows.	See Page **67**
PageMaker from Aldus Corporation, Seattle, Washington	Integrates text and graphics, allowing PC users to produce printed communications.	OS/2, Windows, Macintosh.	See Page **2c**
TeamLinks	Offers access to powerful team capabilities such as conferencing and workflow.	MS-Windows, VMS.	See Page **60**
TeamRoute	Streamlines business processes by automating routing and approval of forms.	MS-Windows, VT, VMS.	See Page **61**
VAX Notes	Facilitates group discussions and records ideas through online conferences.	MS-Windows, VT, Motif, VMS.	See Page **68**
WPS-PLUS	Offers capabilities that move beyond basic word processing and into typesetting.	VMS, MS-DOS	See Page **10c**

Choosing desktop applications for workgroup solutions

*Based on an article in **Digital INSIGHT** – July/August 1992*

DECfonts Typeface Collection

THE RIGHT FONT FOR YOUR IMAGE

The DECfonts Typeface Collection for VMS and ULTRIX provides a library of DECfonts font kits that can be used with any CDA compliant application such as DECwrite and DECpresent, and PostScript imaging devices, including PostScript printers, and Display PostScript software.

Each DECfonts font kit includes the PostScript Type 1 scalable outline fonts, associated metrics for use by formatters such as DECwrite and DECpresent, and matching bitmap screen fonts for both 75 and 100 dpi video displays. DECwindows applications are supported via high-quality matching bitmap screen fonts. Binary Distribution Format (BDF) files are also provided, for use with X terminals which have bitmap compilers supplied.

To use DECfonts, purchase a DECfonts Typeface Collection Media kit, which includes all currently available fonts. Then purchase licences for the fonts you require.

DECfonts Typeface Collection V1.2 SPD 33.50	
LICENCES	
ITC Avant Garde Gothic Condensed	QL-GXA9L-3B
Bodoni	QL-GXB9L-3B
Bauer Bodoni	QL-GXJ9L-3B
Century Old Style	QL-GY69L-3B
Decorative	QL-GXG9L-3B
Folio	QL-GXN9L-3B
Futura 1	QL-GXK9L-3B
Futura 2	QL-GXM9L-3B
Futura Condensed	QL-GXL9L-3B
Headline #1	QL-GXC9L-3B
Headline #2	QL-GXP9L-3B
Headline #3	QL-GXQ9L-3B
Helvetica Black/Light	QL-GXD9L-3B
Helvetica Compressed	QL-GXE9L-3B
Helvetica Condensed	QL-GXF9L-3B
LaserWriter Emulation	QL-YX49L-3B
MEDIA	
For VMS, TK50	QA-YX6AA-H5
For VMS, Magtape	QA-YX6AA-HM
For ULTRIX, TK50	QA-YX6AB-H5
For ULTRIX, Magtape	QA-YX6AB-HM

Required Software: VMS V5.3 – V5.5 or ULTRIX V4.0 – V4.2.

Face to face

Examples of some of the fonts available with DECfonts

ITC Avant Garde Gothic Condensed (4 font family)

Bodoni (5 font family)

Century Old Style (3 font family)

Folio (5 font family)

Futura (5 font family)

Futura Condensed (8 font family)

Cooper Black (Headline #1, 7 different fonts)

Park Avenue (Headline #2, 6 different fonts)

STENCIL (Headline #3, 5 different fonts)

Helvetica Condensed (8 font family)

Palatino (LaserWriter Emulation, 14 fonts)

TeamLinks

WORKGROUP COMPUTING SOLUTIONS FOR MICROSOFT WINDOWS

TeamLinks is Digital's premier team solution for work teams of all sizes. TeamLinks delivers state-of-the-art, distributed client/server technology for the Microsoft Windows environment. TeamLinks integrates personal productivity tools, such as a word processor or spreadsheet, with advanced electronic mail, workflow automation, document routing, conferencing, reference libraries, database access, and document management. All at the click of a mouse button!

Highlights include:

- **Microsoft Windows graphical user interface.**
- **Electronic Mail: X.400-based electronic mail services, providing a customisable user interface, access to Digital's Distributed Directory Services, plus gateways to other vendors' systems.**
- **Integration for popular Windows applications including Microsoft Word and Excel, Lotus 1-2-3, AMI-PRO, Freelance and WordPerfect.**
- **Team information sharing: Group conferencing, electronic reference libraries, and database access.**
- **Document conversion services.**

TeamLinks is a team solution that benefits everyone in your organisation. End users can discover versatile new ways to access and organise applications, data, documents, files, and other information sources. Line-of-Business managers can appreciate the ease of customising and adapting TeamLinks to meet specific business needs. Information Systems managers can improve both control and flexibility by combining Microsoft Windows with the VMS computing environment. TeamLinks offers a unified, customisable, and manageable team solution that helps everyone perform their jobs more effectively.

TeamLinks Info Manager

TeamLinks Info Manager (T.I.M.) is the primary user interface for all electronic mail and file cabinet operations in TeamLinks. With T.I.M., each user can create unique, personalised ways to access and organise data, documents, files, and other information.

Within T.I.M., users have a fully-functional, X.400-based electronic mail service, which also provides access to Digital's Distributed Directory Services. A Personal Address Book is provided for easy maintenance of mail addresses and nicknames. Users can create mail using their editor of choice and mail native document formats to other mail users.

File Cabinet operations enable the user to create and delete drawers, folders and documents; copy and move documents between folders and drawers; view documents; and convert documents into any supported format.

Application launchers are supported within the file cabinet, enabling a user to select a document and automatically call the application that created the document.

The distributed file cabinet presents the user with one logical file cabinet structure consisting of multiple drawers, folders, and documents. There are four physical file cabinet types: Local (on the PC), Remote (on one or multiple servers), ALL-IN-1 IOS Server (for ALL-IN-1 IOS Server users), and the native filing system of the client (MS-DOS).

Distributed file cabinet access and navigation

Distributed file cabinet access allows integrated Microsoft Windows applications to have access to a single, logical file cabinet. When a user requests the file, the desired file format is automatically obtained. For example, if the calling application is Microsoft Word for Windows, it is implicitly requesting that the file be delivered in RTF format. If the file is not already in this desired format, a conversion service, such as the CDA Converter Library or KeyWord's KEYpak, will automatically be called to make the necessary conversions.

The correct navigation directory is also presented automatically. When the user selects MS-DOS storage, the user is presented with a navigation structure similar to that presented in Windows applications. When the user selects TeamLinks storage, it is presented in the TeamLinks structure.

Integrated personal productivity applications

A key strength of TeamLinks is the ability to access Digital's network-wide applications from within personal productivity applications. TeamLinks supports the Microsoft Windows Dynamic Data Exchange (DDE) and Dynamic Link Library (DLL) standards, which enable Windows applications automatically to access electronic mail, shared filing, and document conversion services, from within TeamLinks.

With the integration capabilities of TeamLinks and Microsoft Windows, users can extend the power of Windows applications throughout an enterprise network at the click of a mouse.

TeamRoute

TeamRoute, Digital's Workflow Automation and Routing application, is also a part of TeamLinks. It provides workflow automation, document routing and approval services, bringing the advantages of electronic networks to the review and approval process.

During the review process, each recipient is granted specific processing rights or requirements based on roles. By assigning roles, the originator can specify reviewer privileges. As a routed object is processed,

Content Listing for the core TeamLinks packages

Package 1 TeamLinks Information Manager client/server package (QB-MXRAA-AA)
Package 2 TeamLinks for PATHWORKS client/server package (QB-MHKAA-AA)
Package 3 TeamLinks for PATHWORKS with Microsoft Apps client/server package (QB-MHHAA-AA)

	Package 1	Package 2	Package 3
Information Manager Personal Use Licence	✓	✓	✓
PATHWORKS Browser Personal Use Licence	—	✓	✓
PATHWORKS Conferencing Personal Use Licence	—	✓	✓
Microsoft Applications (Word/Excel/PowerPoint)	—	—	✓
TeamRoute Server Personal Use Licence	✓	✓	✓
DEC MAILworks Server Personal Use Licence	✓	✓	✓
VAX Notes Server Personal Use Licence	—	✓	✓
Guide to Information Manager	✓	✓	✓
PATHWORKS Browser Guide	—	✓	✓
PATHWORKS Conferencing Guide	—	✓	✓
Autodemos for Word/Excel/PowerPoint	—	✓	—
Microsoft documentation(Word/Excel/PowerPoint)	—	—	✓
Client Media	✓	✓	✓

its actual location and review status may be monitored by anyone on the routing list who has been assigned this role.

For example, manufacturing change orders can be routed for approval without the typical delays experienced with geographical boundaries. An item can be tracked and audited en-route. The end result is faster processing with quicker time-to-market.

TeamRoute provides many out-of-the-box routing applications, including Action Item Tracking, Document Review and Sign-off, Meeting Announcement, Answer-a-Question, Read and Acknowledge, Account Request form, and Travel Authorisation.

Group conferencing

Communicating information throughout the organisation is often difficult. Information has its highest value when it can be discussed, shared, or modified interactively. Digital's tool for facilitating electronic discussions is called VAX Notes.

As a communication tool, VAX Notes is an ideal distributed application. It overcomes time differences and geographical separation, and provides a focal point for people who share a common interest.

Customisation tools

Digital offers a robust computing environment: architecture, applications, and customisable line-of-business solutions built upon Network Application Support (NAS) and supported by multiple programming languages. With tools such as Microsoft's Visual Basic, customised applications can be rapidly prototyped and deployed.

Specifications

The TeamLinks V1.0 client supports the following PC-to-Host connections:

- PATHWORKS for DOS (V4.0 or later)
- Asynchronous (both asynchronous DECnet and KERMIT)
- LAT

Required software is DOS V3.3 or later, Microsoft Windows V3.0 or later, and PATHWORKS for DOS V4.0 or later. Required Hardware is at least a '386' CPU, 5.0 MB system memory, Ethernet or Asynchronous connection, one diskette drive, VGA, and a 40MB hard disk or equivalent on server.

Ordering Information

The client/server packages featured in the table include the licences shown and client media. The specific server media you require must be ordered separately.

Once you have media on site, you can elect to purchase further TeamLinks licence-only kits.

Package 1

TeamLinks Info. Manager V1.0
CONOLD — CONDIST — 14 DAYS ✓

LICENCE WITH MEDIA	**QB-MXRAA-AA**
LICENCE	**QP-MXRAA-AA**
DEC MAILWORKS SERVER MEDIA	**QA-YCZAA-H5**
TEAMROUTE SVR MEDIA	**QA-GEXAA-H5**

Package 2

TeamLinks PATHWORKS V1.0
CONOLD — CONDIST — 14 DAYS ✓

LICENCE WITH MEDIA	**QB-MHKAA-AA**
LICENCE	**QP-MHKAA-AA**
DEC MAILWORKS SERVER MEDIA	**QA-YCZAA-H5**
TEAMROUTE SVR MEDIA	**QA-GEXAA-H5**
VAX NOTES SVR MEDIA	**QA-960AA-H5**

Package 3

TeamLinks PATHWORKS + Appls V1.0
CONOLD — CONDIST — 14 DAYS ✓

LICENCE WITH MEDIA	**QB-MHHAA-AA**
LICENCE	**QP-MHHAA-AA**
DEC MAILWORKS SERVER MEDIA	**QA-YCZAA-H5**
TEAMROUTE SVR MEDIA	**QA-GEXAA-H5**
VAX NOTES SVR MEDIA	**QA-960AA-H5**

DEC MAILworks Products

INTER-ENTERPRISE DESKTOP COMMUNICATIONS

NEW VERSION

DEC MAILworks for Windows

DEC MAILworks is the new name for the set of products formerly known as ALL-IN-1 Mail. This change in name is in response to feedback from our customers and field personnel about the confusion between ALL-IN-1 Mail (name changed to DEC MAILworks) and the ALL-IN-1 Integrated Office System (name unchanged). The name change on literature and documentation will take place gradually as new releases of the current product set are distributed. The new name is used in this description.

DEC MAILworks Server Software sits on any DECnet-equipped VMS machine, and provides X.400-based message transport and distributed directory services for the respective client systems. It offers:

- A migration path for VMSmail and PCmail users to a native, inter-enterprise MAILbus environment.
- Store and Forward Mail service based on a 1984 CCITT X.400 'P2' compliant user agent.
- Access to Digital's Distributed Directory Service (DDS).
- Remote dial-in for PC users, enabling mail to be collected and delivered in batches, for maximum convenience and minimum communication costs.
- Ability to reply to all TO:s and CC:s.
- Support for VMSmail-style nicknames, distribution lists and addressing conventions.

Industry standards

Based on full X.400 P2 recommendations, the clients give their users direct access to full, inter-enterprise, vendor-independent mail services. Users have the freedom to use their local editor of choice to compose their text, and are provided with both a personal address book and access to Distributed Directory Services present on the server.

Security

Security reflects the controls available on the DEC MAILworks Server host. With many people now purchasing small laptop computers, DEC MAILworks for DOS allows the automated batch processing of mail collection and delivery; the server connection is not required to read, file or create messages.

DOS Client	Mac Client	VT Client	DECwindows Client
DEC MAILworks for DOS	DEC MAILworks for Mac	DEC MAILworks for VTs	DEC MAILworks for DECwindows
PATHWORKS for DOS	PATHWORKS for Mac		
PATHWORKS for VMS			
DEC MAILworks WAN Package			
DECnet	DECnet	DECnet	DECnet
VMS	VMS	VMS	VMS
VAX			

Ordering information

Purchase the DEC MAILworks WAN package, which includes licences for DEC MAILworks Server, Message Router, VMSmail Gateway and Message Router X.400 Gateway, as well as media for all the above except the X.400 Gateway, which must be purchased separately. Combine this with the client or clients of your choice.

As a member of Digital's range of MAILbus products, DEC MAILworks Server communicates with many other mail systems. Mail capabilities are in addition to the normal terminal access, file transfer and print services available from the client system of choice.

SPD 31.51 gives an overview of DEC MAILworks product family.

DEC MAILworks server (QL-YCZ99-AA) and DEC MAILworks LAN Server (QB-YFTA9-AA) are also available, for use where there is no requirement to exchange mail beyond a single server, or where you've already licensed the Message Router.

DEC MAILworks for DECwindows V1.1a SPD 39.59

PERSONAL USE LICENCE

CONOLD ✓ CONDIST ✓ 14 DAYS ✓

LICENCE	QL-VZ7AA-2B	(Need 1 per VAXstation)
MEDIA	Included in MAILWORKS Server Packages. Documentation must be ordered separately.	
DOCS	QA-VZ7AA-GZ	

Required Software: VMS V5.4-V5.5 with DECwindows, DECnet-VAX, DEC MAILworks Server V1.1.

DEC MAILworks for DOS V1.1a SPD 39.58

PERSONAL USE LICENCE

CONOLD — CONDIST — 14 DAYS ✓

LICENCE	QL-VZ8AF-2B	Incl. in PATHWORKS for DOS
MEDIA	QA-VZ8AA-H5	(TK50)
or	QA-VZ8AA-HM	(Tape)
or	QA-VZ8AA-HB	(3.5" 720KB disk)
or	QA-VZ8AA-H7	(5.25" 360KB disk)

Required Software: PATHWORKS for DOS V4.0 or later or Kermit. DEC MAILworks Server V1.1.

DEC MAILworks for Mac V1.1a SPD 39.62

CONOLD — CONDIST — 14 DAYS ✓

LICENCE	Included in PATHWORKS for Mac	
MEDIA	QA-YX1AA-HB	
DOCS	QA-YX1AA-GZ	

Required Software: Apple Macintosh Operating System V6.04 or V7.x, PATHWORKS for Macintosh V1.0, DEC MAILworks Server for VMS V1.1.

DEC MAILworks for Windows V1.1 SPD 39.15

PERSONAL USE LICENCE

CONOLD — CONDIST — 14 DAYS ✓

LICENCE	QL-XZJAG-2B	
MEDIA	QA-XZJAA-HB	

Required Software: DEC MAILworks Server V1.1c, DOS V3.3 or later and Windows V3.0 or later, PATHWORKS for DOS V4.0 or later, or PATHWORKS for Windows V1.0.

DEC MAILworks WAN Package V1.1a 3U SPD 39.59 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

CW	B	C	D	E	F	G	H	J	K	L	M	N	Q	S	T	U	V
QL-YFUA9-J																	

Required Software: VMS V5.4 - V5.5 and DECnet-VAX V5.4 - V5.5. **Note:** VAX Message Router X.400 Gateway Media (QA-VDMAA-H5) must also be purchased to gain access to X.400 based services.

MEDIA AND DOCS — TK50 5 Tape M

MEDIA QA-YFUAA-H

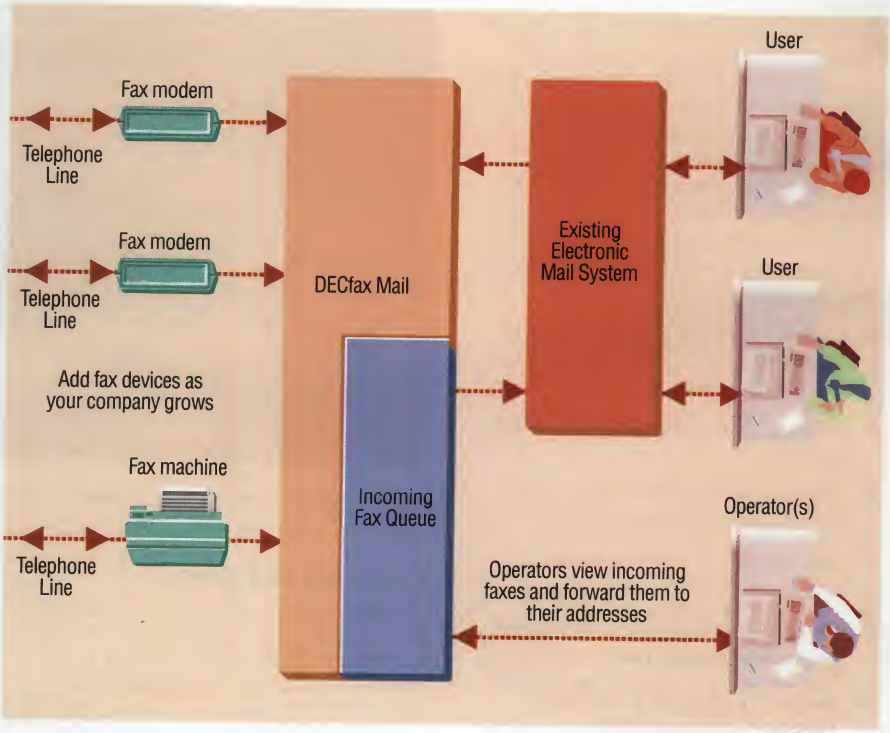
DECfax Mail

INTEGRATE FAX MESSAGING WITH ELECTRONIC MAIL TO SAVE TIME AND MONEY

More and more companies are using fax messages to communicate electronically. For all its convenience however, conventional fax messaging can be costly. A recent study estimated that the average time it takes to send a fax is seven minutes. If your organisation sends 100 faxes a day, the study concludes, it's costing you about 60 employee hours a week.

Now, with DECfax Mail for OpenVMS V1.0, you can cut those hours to minutes — and reap the rewards of greater efficiency in your business communications.

- Uses Digital's electronic mail systems to send text, graphics, pictures, and compound documents by fax.
- Automatically converts document to fax format.
- Delivers all incoming fax transmissions as electronic mail.
- Supports your local workgroup, or your entire enterprise.
- Simple, cost effective, and easy to support.



Now sending a fax is as easy as electronic mail.

DECfax Mail lets you send and receive fax messages right from your desk, as easily and quickly as ordinary electronic mail.

Using the following Digital mail systems — DEC MAILworks, ALL-IN-1 IOS, VMSmail, and DECwindows Mail — DECfax Mail uses the normal mail screen to send and receive fax messages; no changes are necessary. Because it is a fully compliant MAILbus product, DECfax Mail can support your enterprise-wide network as easily as it does a small LAN.

WYSIWYF: What You See Is What You Fax

DECfax Mail for OpenVMS is flexible. You can fax messages in a large variety of formats: WPS-PLUS, PostScript, text, graphics, pictures, and compound documents. Even when the individual documents within a single fax are of different types, DECfax Mail automatically identifies the document types, converts each of them to fax format, and mails them as a single fax.

To transmit a fax message, just 'send' it to the addressee's name and fax number. You can treat fax addresses exactly like electronic mail addresses, adding them to your distribution lists and giving them nicknames. DECfax Mail 'captures' your message and transmits it, via a fax modem, through the telephone network to the recipient's fax device. Fax messages sent to you are delivered to the DECfax Mail operator's account; the operator can print messages or forward them to you electronically, either separately or attached to other documents. Electronic filing enables you to store all related messages in one organised folder, and eliminates the clutter and possible misplacement of paper fax transmissions.

In addition, incoming messages can be forwarded to other addresses by electronic mail or fax. To protect confidentiality, DECfax Mail allows you to restrict operator access to the contents of fax messages.

More convenience, less cost

DECfax Mail can also help you cut time and costs in other applications. For example, through the programming interface, an invoicing application could use DECfax Mail to send electronic invoices instead of printing them for hardcopy mail.

If you send long-distance international fax messages, DECfax Mail can save you money by using the 'defer send' feature of your mail system. Faxes will then be stored and sent later, when lower telephone rates are in effect.

Apart from the immediate benefits offered to the user, and to your business, as a result of DECfax Mail's 'fax-from-the-screen' capability, DECfax Mail makes no changes to the user's familiar environment. It's therefore easy to learn and easy to support. Add DECfax Mail to your mail system, and discover real productivity and efficiency benefits — company-wide.

DECfax Mail V1.0			**SPD 41.69**
CONCURRENT USE LICENCE			
CONOLD	— **CONDIST**	— **14 DAYS**	✓
INITIAL LINE	**QL-05TAA-3B**		
EXTRA LINE	**QL-07LAA-3B**		
MEDIA	**QA-05TAA-H5**		(TK50)
or	**QA-05TAA-HM**		(Tape)

Required Software: OpenVMS V5.5 - V5.5-2, DECwindows Motif V1.1 and optional software of VAX Message Router V3.2, ALL-IN-1 IOS V2.4 - V3.0, DEC MAILworks V1.1, ALL-IN-1 DESKtop for DOS or Macintosh V1.0, and VAX MR VMS Mail Gateway V3.2.
Required Hardware: Most VAX system (not MicroVAX II or earlier). Depending on country, one of the following fax devices: Dataplex fax modem or Hasler Fax Unit with a full modem control Terminal Server, or a Murata F50 fax machine. For incoming fax messages, a Workstation or VXT terminal is preferable; alternatively a PC running an X-windows emulator, or a Sixel terminal (VT330, VT340).

AN ALL-IN-1 PRODUCT

ALL-IN-1 IOS Server

INTEGRATING THE ENTERPRISE

ALL-IN-1 IOS (Integrated Office System) provides a toolbox of standard office applications and development tools that are customised to suit the needs of a user community. ALL-IN-1 IOS works for more users in more languages than any other integrated office system. ALL-IN-1 IOS Server is the hub of Digital's office system, which comprises ALL-IN-1 Desktop, TeamLinks and associated products. The package contents include:

- Enterprise-wide Electronic Mail, based on the VAX Message Router MAILbus product.
- Automatic unattended Mail Reply facilities.
- Digital's WPS-PLUS/VMS 'Gold Key' Word Processing System.
- An enterprise-wide directory service.
- Time Manager features, including the ability to schedule meetings between users on geographically dispersed ALL-IN-1 systems.
- System Administration and Archiving capabilities.
- Built in Computer Based Training.
- Fully integrated Videotex through the use of VAX VTX optional software product.
- Includes ALL-IN-1 Group Conferencing, a version of VAX Notes for ALL-IN-1 IOS users, at no extra charge.

Easy to learn

ALL-IN-1's simple menu-driven format makes it easy to learn and easy to use. Because of the consistent user interface, the experience gained in one application can be applied to others.

Customisation

Tools are included that enable ALL-IN-1's common user interface, menus and keyboard to be modified. A full set of application integration documentation is also provided, enabling your system implementers to combine and integrate their own business-specific applications. With a consistent user interface and a single file cabinet structure, this level of integration is unique to Digital.

Extensive communications

ALL-IN-1 includes the VAX Message Router and Message Router VMSmail Gateway. If required, you may add one or more of Digital's MAILbus products, opening up communications links to a variety of other user communities.

ALL-IN-1 expands to include every member of your team with its multi-client platform capability.

Flexible low-cost options

Recently, Digital announced its single-user licensing initiative. ALL-IN-1 is available in a Personal Use version at a very preferential price. Extra Personal Use licences can be added at any time; this route often offers a cost-saving over the unlimited-user equivalent for a specific size of user community.

A 'Load-and-Go' version of ALL-IN-1, minus the Time Management and customisation facilities, termed ALL-IN-1 Starter, is available at V2.4. Should you wish to upgrade to the full equivalent later, we will give you full credit for the ALL-IN-1 Starter licences purchased to date.

New Version

ALL-IN-1 IOS V3.0 has a variety of enhancements:

- File Cabinet Drawers to improve user segmentation of stored documents.
- Shared File Cabinet to link user file cabinets on the same system, thus enabling collaboration on documents between team members. An optional product, ALL-IN-1 Distributed Sharing Option, will soon be available for sharing files across the network.
- Electronic Mail enhancements such as Delegate Mail Operations and Create Distribution List from read mail.
- Group Services to manage a work group or team of users.
- WPS-PLUS editor enhancements such as the ability to edit up to 10 documents at a time, multi-column editing, and enhanced formatting.

At your service

Digital offers a variety of ALL-IN-1 associated services that can be conducted even when you're unsure of the potential impact of any office system on your business environment. Digital also offers a variety of installation and training services to make your investment in ALL-IN-1 a success for you — and your user community.

ALL-IN-1 IOS Server V3.0			SPD 27.30
CONOLD ✓	CONDIST ✓	14 DAYS ✓	
LICENCE	QL-AAAEA-2B		
MEDIA	QA-AAAEA-H5		(TK50)
or	QA-AAAEA-HM		(Tape)

Required Software: VMS V5.4, V5.5-1, V5.5-2 (DECwindows must be installed for CDA usage) plus DECnet-VAX for multinode support.

AN ALL-IN-1 PRODUCT

ALL-IN-1 Desktop Products

BUILDING ON YOUR PC AND WORKSTATION INVESTMENTS

Office Systems are much more than just word processing. The historic success of Digital's ALL-IN-1 product was based on its ability to provide seamless access to any application — Digital or third party — from each terminal user's desktop. This, coupled with excellent base document processing and electronic mail, is the foundation on which over a million end users make productive use of their information resources.

Several trends have necessitated the need to evolve the ALL-IN-1 product into a complete product family for the 1990s.

- Around three-quarters of the people accessing ALL-IN-1 systems today do so using Personal Computers in one way or another. We want to give these users better access without compromising their existing investment in desktop hardware.
- The integration of third party applications is becoming multi-platform in nature: ALL-IN-1 capabilities on the host, others from the desktop machine of choice.
- The increased use of (remote) laptop computers.

The initial goal is to provide products that meet these trends for the most common personal systems used by Digital customer sites — for MS-DOS, Macintosh and VMS workstations. Digital will then extend the products to encompass all the (likely) successful desktop systems, including OS/2 and ULTRIX.

ALL-IN-1 meets the intelligent desktop

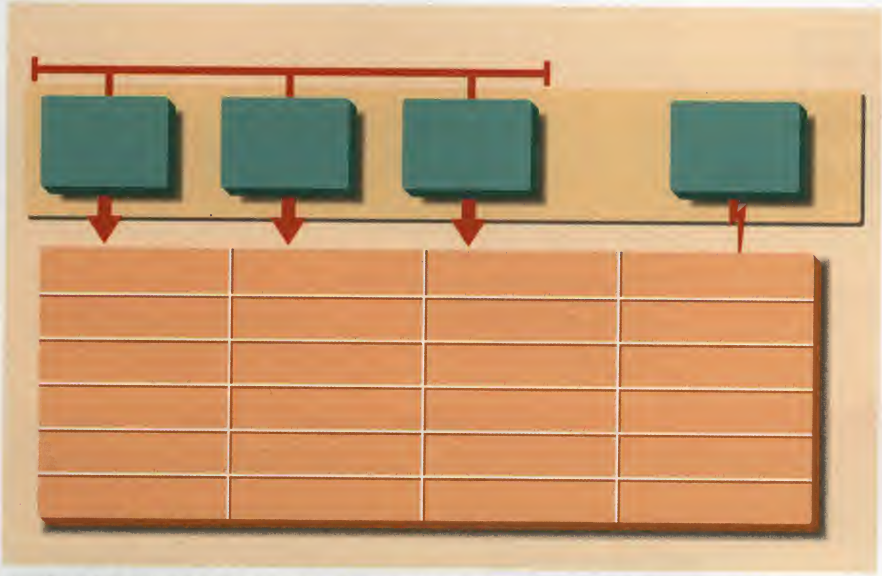
ALL-IN-1 Desktop requires the presence of an ALL-IN-1–based Server system. The ALL-IN-1 Desktop Server software is loaded on any valid ALL-IN-1 V2.3 or ALL-IN-1 Starter V1.0 system, and provides services to a community of ALL-IN-1 Desktop systems.

Initially, Digital has announced ALL-IN-1 Desktop for DOS, ALL-IN-1 Desktop for Macintosh, and ALL-IN-1 Desktop for VMS DECwindows. These products allow the user the normal freedoms associated with their desktop machines, but add value by permitting the sharing of information among the variety of information resources available on the network.

Like the host-based equivalent, ALL-IN-1 Desktop systems are fully customisable and can call on applications as required, whether local or on the host machine. The user has access to the full range of ALL-IN-1 Services, including File Cabinet, Time Management, enterprise-wide message transfer and integrated business applications. The user also has access to a full range of mail services, including the ability to process documents at the desk, and also to send locally-sourced files as mail attachments.

Back to the future

Until now, ALL-IN-1 has been used primarily as a departmental system, providing terminal users with access to a variety of office applications through a common user interface. The new release distributes the power of ALL-IN-1, so that desktop users can enjoy the best of two worlds: the power of the industry-leading integrated office system, and the productivity and familiarity of the PC or workstation environment.



ALL-IN-1 Desktop integrates preferred desktop devices with the ALL-IN-1 Office Information System... and beyond.

Note: If you have a need for mail facilities only, with minimal use of the other ALL-IN-1 facilities, we recommend use of the DEC MAILworks products instead.

ALL-IN-1 Desktop Server for VMS V1.1 SPD 31.71

CONOLD — CONDIST ✓ 14 DAYS ✓

LICENCE	Included in ALL-IN-1 and ALL-IN-1 Starter	
MEDIA	**QA-YFFAA-H5**	(TK50)
or	**QA-YFFAA-HM**	(Tape)

Required Software: VMS V5.3 – V5.5, ALL-IN-1 V2.4 or ALL-IN-1 Starter V2.4. **Optional Software:** PATHWORKS for VMS.

ALL-IN-1 Desktop for DOS V1.1 SPD 50.20

PERSONAL USE LICENCE

CONOLD — CONDIST — 14 DAYS ✓

LICENCE	**QL-YFEAF-2B†**	
MEDIA	**QA-YFEAA-HB**	(3.5" 720 KB Disk)
or	**QA-YFEAA-HI**	(5.25" 360 KB Disk)

† Need 1 per PC.

Required Software: ALL-IN-1 Desktop Server for VMS V1.1.
Optional Software: PATHWORKS for DOS.
Required Hardware: Any PC configuration supported by PATHWORKS and 2.5 MB of disk space.

ALL-IN-1 Services for DECwindows V1.0a SPD 33.22

PERSONAL USE LICENCE

CONOLD — CONDIST ✓ 14 DAYS ✓

LICENCE	**QL-YG4AA-2B†**	
MEDIA	**QA-YG4AA-H5**	(TK50)
or	**QA-YG4AA-HM**	(Tape)

† Need 1 per Workstation.

Required Software: VMS V5.4 or later with DECwindows, ALL-IN-1 V2.4 and CDA Convertor Library for VMS V1.0 – V1.1.

ALL-IN-1 Desktop for Mac V1.0 SPD 55.25

PERSONAL USE LICENCE

CONOLD — CONDIST — 14 DAYS ✓

LICENCE	**QL-YLAAH-2B†**	
MEDIA	**QA-YLAAA-HB**	

† Need 1 per Workstation.

Required Software: ALL-IN-1 Desktop Server for VMS V1.1.
Optional Software: PATHWORKS for Macintosh.

AN ALL-IN-1 PRODUCT

ALL-IN-1 Performance Reports

NEW PRODUCT

EASY-TO-USE PERFORMANCE ANALYSER FOR ALL-IN-1

Until now, ALL-IN-1 System Managers and Administrators have needed comprehensive OpenVMS skills to analyse the performance of their ALL-IN-1 system. With the release of ALL-IN-1 Performance Reports, it is possible to analyse performance data collected by DECtrace via an easy-to-use menu, and then produce a variety of reports.

Reports for decision-making

The reports are produced both as tables and bar charts, and are designed to give information needed to identify potential bottlenecks and those functions and users consuming the most system resources.

The data formatted and presented by ALL-IN-1 Performance Reports is collected using DECtrace for VMS. DECtrace for VMS is a general performance data collector that captures application and performance data from a wide variety of Digital products, including ALL-IN-1.

ALL-IN-1 Performance Reports can provide statistical information on seven categories (including CPU usage, Buffered I/O and Direct I/O) in four different ways dependent on Username and Function. Reports can be Interactively or Batch compiled after entering requests at the menu interface.

ALL-IN-1 Performance Reports V1.0	SPD 39.48				
CONOLD	✓	CONDIST	✓	14 DAYS	✓
LICENCE	QL-MLJA9-AA				
MEDIA	QA-MLJAA-H5/M				

Required Software: OpenVMS V5.2–V5.5, ALL-IN-1 V2.4–V3.0, DECtrace for OpenVMS V1.0a–V1.1a Runtime on monitored nodes, Full DECtrace and DEC Rdb OpenVMS V3.1b–V4.0 Runtime on formatting node.

CDA Converter Library

BECAUSE SHARING IS WHAT DIGITAL DOES BEST

The CDA Converter Library lets you convert data from many different formats to Digital's DDIF document interchange format, and from DDIF to multiple formats.

A gateway to integration

The problem many organisations face today is not just obtaining access to the right information, but sharing it among multiple users. The spreadsheets, graphs, and figures that users need may exist on the network, but incompatible file structures may render them very difficult to use. The CDA Converter Library provides the gateway to CDA for a variety of systems, with many new converters available in V2.0.

CDA Converter Library formats		Also included in: DECwrite for VMS and VAX ULTRIX	Also included in: DECdecision
Text Files (read/write)	• DX — DEC WPS-PLUS and word processor format	✔	
	• DCA — IBM PC word processing standard		
	• SGML — ISO Standard mark-up language		
	• AFS — Alternate Format Syntax; ASCII editors	✔	
	• WPL — Digital's word processing WPS-PLUS		
	• MAC and RTF — from MacWrite and Mac-Word		
	• MS-WORD — V4.0 & V5.0		
	• WordPerfect — V5.0, V5.1		
	• DSR — Digital Standard Runoff for VMS		
Data Files (read/write)	• DTIF — CDA Digital Table Interchange Format		✔
	• WK1, WK3 — Lotus 1-2-3		✔
	• ASCII Tabular — Generic ASCII Tabular files	✔	✔
Image Files (read/write)	• TIFF — Tagged Image File Format		
	• MacPaint — Macintosh, bitonal images		
	• PICT — MacDraw Image and Graphical		
One-way converters:	• DIF — Data Interchange Format (read-only)		
	• CALCGRD — DECalc Grid files (read-only)	✔	
	• CGM — ANSI Graphics Metafile (read-only)		
	• *ROFF — Standard UNIX Format (read-only)		
	• ASCII Field — Field and definitions (read-only)		
	• GIF — Graphical Interchange Format (read-only)		
	• DDIF Graphics Hardcopy (write-only)†		
	– HPGL Hewlett-Packard plotter format		
	– Monochrome Sixel format		
	– Colour Sixel format.		

†(DEC GKS V4.2 on VMS or ULTRIX is required to support this DDIF Hardcopy Converter)

CDA Conv Lib for VMS V2.0	3U	SPD 31.31	CONOLD ✓	CONDIST ✓	14 DAYS ✓

CW	B	C	D	E	F	G	H	J	K	L	M	N	Q	S	T	U	V
QL-VZAA9-J																	

EXTRA DOCUMENTATION SETS	MEDIA AND DOCS	TK50 5	Tape M
DOCS QA-VZAAA-GZ	MEDIA QA-VZAAA-H		

DECwrite V2.0

UNPRECEDENTED POWER FOR DOCUMENT CREATION

DECwrite tightly integrates WYSIWYG desktop publishing, word-processing, business graphics, drawing tools and equation editing into one complete package. You get publishing from conception to camera-ready mechanicals, for documents like technical manuals, business proposals, research reports, and magazine-style product data sheets.

Features

- Available for VMS, ULTRIX, Sun SPARCstation and Microsoft Windows.
- Offers unsurpassed ease of use.
- Incorporates exciting new capabilities including point-and-click function bar, table editor, and mail merge.

Great for collaborative projects, DECwrite documents can be shared across VMS, ULTRIX, Sun SPARCstation, and Microsoft Windows — with no conversion.

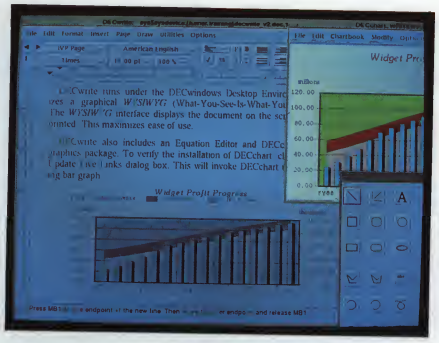
DECwrite is available in several languages, and you can mix languages in the same document.

Exciting new capabilities

The new icon-oriented function bar lets you point-and-click to activate most capabilities. A new mail merge capability makes customised mailings a snap. And a table editor lets you quickly organise text, numbers and graphics into rows and columns.

Robust word-processing

DECwrite has extensive word processing capabilities like automatic cross references, vertical justification, multiple fonts and footnotes. Add additional fonts from the DECfonts Typeface Collection. Interactive tools such as spell check, thesaurus, and automatic hyphenation make sure you always look your best.



Multiplatform Desktop Publishing

Flexible layout

Place text and graphics anywhere on the page; mix portrait and landscape pages in one document. Predefined templates speed document creation. Draw your own graphics or choose from over 400 pieces of revisable clip-art. Use the DECchart business graphics component to create convincing charts. Display formulas with the equation editor. Annotate, scale and crop images.

CDA gives you more!

DECwrite supports the CDA Architecture so you can LiveLink to applications like Adobe Illustrator (VMS and ULTRIX) or to charts, images, CAD files and Encapsulated PostScript files. And the optional CDA Converter Library provides conversion services for several text and graphic formats.

DECwrite SGML Gateway software provides a bi-directional bridge between DECwrite and SGML.

The Do-everything Document Editor

- ✓ Familiar text-processing commands, with keyboard layouts in many popular formats.
- ✓ Powerful stylesheet-controlled word processing — saves time when formatting and re-formatting documents.
- ✓ Automatic table-of-contents and index generation enhances the production of lengthy documents
- ✓ Supports multiple-column and mixed-column designs for maximum flexibility.
- ✓ Built-in spelling checker — DECwrite/British minds your Ps and Qs for you with an 87,000-word British dictionary!
- ✓ On-line electronic thesaurus — you'll never get stuck for the right word!
- ✓ Full change-management features, including red-lining and change bars.
- ✓ Built-in graphics toolset — create diagrams and illustrations without leaving DECwrite.
- ✓ Supports scanned images for DTP-standard presentations; on UNIX machines, encapsulated PostScript files can be viewed on-screen.
- ✓ Built-in business graphics — quickly produce charts based on worksheet data.
- ✓ LiveLink technology 'hot-links' your external data to the DECwrite document for automatic updating.
- ✓ Handles the typesetting of complex equations.

DECwrite for VMS V2.0	SPD 25.F7
LICENCE TYPE AVAILABLE	UPI VVF

CONC	PERS	TRAD	CW	OTHER
✓	✓	—	✓	—

DECwrite for MS-Windows V2.0	SPD 36.39
CONOLD — CONDIST — 14 DAYS ✓	
LICENCE QB-XRVEA-AA	5.25"
or QB-XRVEA-AB	3.5"
Media included.	

Required Software: MS-DOS V3.3 or later and MS Windows V3.0

DECwrite for ULTRIX V2.0	SPD 25.K6
USER BASED LICENCE	
CONOLD ✓ CONDIST — 14 DAYS ✓	
PERS	QL-YG1EC-2B
CONC	QL-YG1EC-3B
MEDIA	QA-YG1EA-H5

Required Software: ULTRIX worksystem software V4.0–4.2.

DECwrite for SUN SPARCstation V2.0	SPD 36.38
CONCURRENT USE LICENCE	
CONOLD — CONDIST — 14 DAYS ✓	
LICENCE	QL-XRWAJ-3B
MEDIA	QA-XRWAA-HP

Required Software: SunOS V4.1.1, Open Windows V2.0 or MITX11R4

DECwrite for VMS V2.0	SPD 25.F7
USER BASED LICENCE	
CONOLD ✓ CONDIST ✓ 14 DAYS ✓	
PERS	QL-VVFEA-2B
CONC	QL-VVFEA-3B
MEDIA	QA-VVFEA-H5/M

Required Software: VMS V5.3-1 or later and DECwindows, or VMS V5.4 or later and DECwindows Motif.

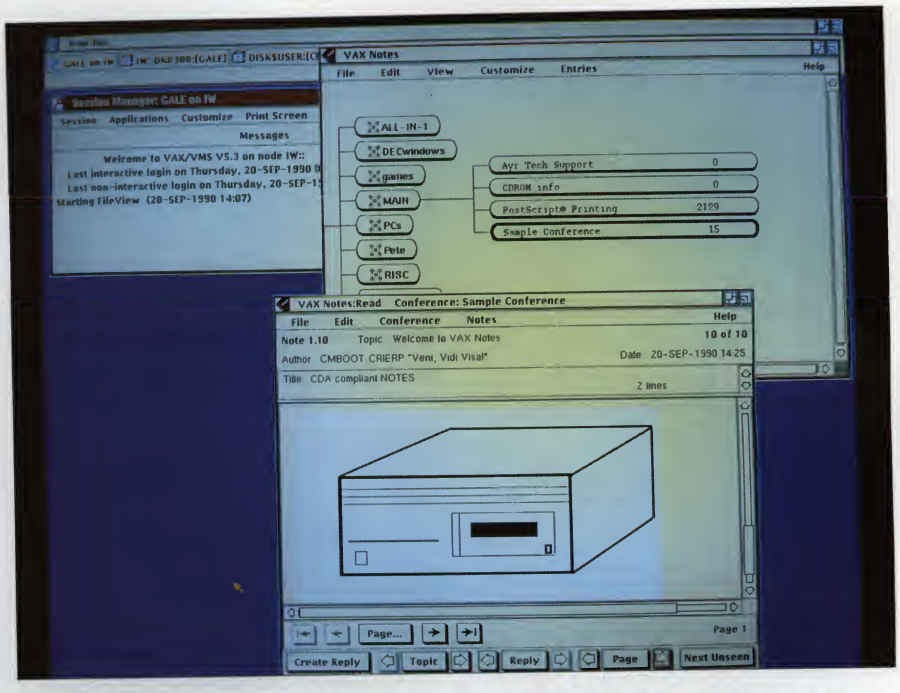
VAX Notes

MEETING OF THE MINDS

Imagine a conference without a venue, a meeting to which no one has to travel, a discussion which you can join halfway through without missing a word, a dialogue in which every word is unerringly recorded. This is VAX Notes, one of the most powerful communication tools used by Digital.

- Computer conferencing: self-documenting dialogue and discussion without limits of time, location or topic.
- Increases both the quantity and quality of information exchange within an organisation.
- Simple-to-use software enables new users and experts to participate with equal effectiveness.

VAX Notes uses a simple topic-and-reply format. Topics and replies are titled and kept in chronological order, making it easy to locate the subject in which you're interested. Digital's CDA (Compound Document Architecture) is supported, allowing the inclusion of text, data, graphics and images.



VAX Notes enables you to participate in on-line conferences and meetings without leaving your desk.

Easy to use

All VAX Notes functions are accessed either by typed commands through a character-cell terminal or, in DECwindows Motif, via a pull-down menu. VAX Notes integrates Digital's comprehensive electronic mail capabilities.

VAX Notes conferences can be open to anyone on the network, or they can be limited to a select group.

A cost-effective solution

VAX Notes is designed using client/server technology to achieve rapid response. The Server option allows access to all of VAX Notes' capabilities, while the lower-cost Client option omits the ability to create new conferences.

Ordering information

VAX Notes can be purchased in three different forms.

- Unlimited System Use Full-function licence – Server/Client
  This option allows you to serve conferences to unlimited local and remote clients. The clients have access to both local or other remote conferences.
- Concurrent Use Full-function licence – Server/Client
  Each Concurrent Use licence allows any one individual at a time to use the layered product. This option restricts the number of simultaneous local client users on the node or VAXcluster where the Concurrent Use licence is installed and allows unlimited remote client access to the server.
- Personal Use Licence – Client only
  Each Personal Use licence allows one identified individual to use the client capability only. This option allows single user access to remote conferences.

The 'Notes for TeamLinks' and 'PATHWORKS Conferencing' options (See the *Workgroup Computing* Section) allows VAX Notes server features to be accessed by networked PC clients.

VAX Notes V2.3 — 3U — SPD 27.06 — CONOLD ✓ — CONDIST ✓ — 14 DAYS ✓

CW	B	C	D	E	F	G	H	J	K	L	M	N	Q	S	T	U	V
QL-960A9-J	■																

USER BASED LICENCE	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
CONC QL-960AA-3B	DOCS QA-960AA-GZ	MEDIA QA-960AA-H ■

Required Software: VMS V5.4 or later, plus DECwindows Motif if used, and DECnet-VAX for remote access.

VAX Notes Client V2.3 — 3U — SPD 27.06 — CONOLD ✓ — CONDIST ✓ — 14 DAYS ✓

CW	B	C	D	E	F	G	H	J	K	L	M	N	Q	S	T	U	V
QL-VESA9-J	■																

USER BASED LICENCE	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
CONC QL-VESAA-3B PERS QL-VESAA-2B	DOCS QA-960AA-GZ	MEDIA QA-960AA-H ■

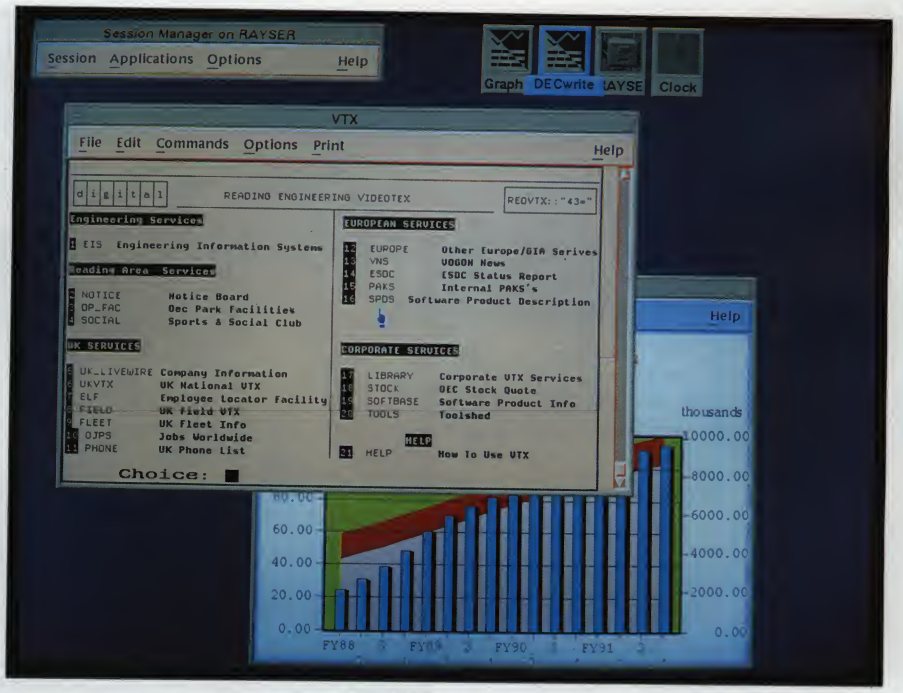
Required Software: VMS V5.4 or later, plus DECwindows Motif if used, and DECnet-VAX.

DEC VTX

HARD FACTS WITHOUT HARD COPY

Every organisation produces information — vast stores of it. The challenge is to publish this information to large numbers of people throughout your organisation... even though many of them may be in a different building, a different country. That's where DEC VTX comes in.

- Corporate videotex software for electronic information distribution; eliminates the cost and time overhead of hard-copy distribution.
- Supports CDA (Compound Document Architecture); allows inclusion of text, data, graphics and images.
- Ensures accurate and up-to-date information is distributed throughout your organisation; inconsistent or obsolete data is instantly eliminated.
- Available for all Digital VMS systems; accessible from DCL, DECwindows, and ALL-IN-1 user interface. Also client access from PCs with DOS or MS-Windows interface, and ULTRIX machines. All the previous clients are contained on the main VMS kit. Access is also available for the Apple Macintosh via third-party product.



DEC VTX enables you to publish reference information throughout your enterprise.

Publishing without paper

The printed word has its strengths, but flexibility isn't one of them! Producing, storing and updating hard copy is difficult and costly. All too often, information is out of date even as it's being (expensively) printed and distributed. By publishing electronically, you gain the ability to switch the flow of information on and off like a tap. Out-of-date information can be replaced instantly, thus preventing the use of obsolete or inconsistent data. Policy manuals, directories, product specifications, reference handbooks and newsletters are all excellent candidates for VTX-based circulation.

Simple. Secure. Self-explanatory.

You need no training to use DEC VTX... all you need is system access. Self-explanatory menus guide you through the system to the information you need.

Combine this with keyword search and you spend less time looking for information and more time using it! The greater accessibility of information does not mean that security is compromised. Access-limiting features are part and parcel of DEC VTX.

DEC VALU

DEC VALU (VTX Application Link Utilities), part of DEC VTX, enables programmers to effect a two-way VTX service capable of collecting information from and distributing information to individuals. It can also be used to provide access to application databases.

A cost-effective solution

DEC VTX offers a distributed computing architecture, and is based on client/server technology. Communications can be via DECnet or TCP/IP.

DEC VTX V5.1 includes an enhanced ALL-IN-1 IOS Client and CDA support is now included in the ULTRIX Motif and Microsoft Windows Client, allowing display of DDIF graphics.

DEC VTX Text Retrieval System

DEC VTX Text Retrieval System extends DEC VTX to include text retrieval capabilities. There are full text-indexing and search capabilities, making DEC VTX Text Retrieval System the only fully distributed text retrieval system.

Users can now undertake a 'full-text search' of ISO-1 (ANSI) and CDA (DDIF) documents in addition to using the inbuilt keyword search facility. No changes to existing information are needed to use the new retrieval features.

The DEC VTX Text Retrieval System includes DEC VTX V5.1 and is for both VMS servers and all DEC VTX clients except Macintosh.

DEC VTX V5.1 39 SPD 26.57 CONOLD — CONDIST ✓ 14 DAYS ✓

TR R Q C P N M L K S J H B 2 G F E 3 4 D U V 5

QL-031A -AA

USER BASED LICENCE	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS TK50 5 Tape M
CONC QL-031AA-3B	DOCS QA-031AA-GZ	MEDIA QA-031AA-H

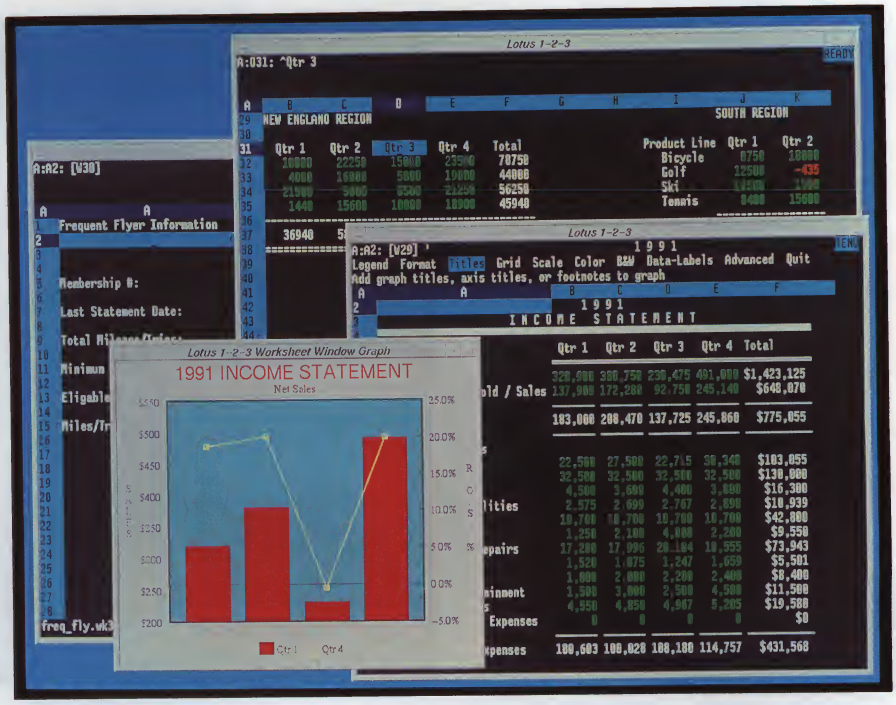
Required Software: VMS V5.1 - V5.5, DECnet-VAX V5.1 – V5.5, VMS/ULTRIX Connection V1.3 (if using INTERNET communications). PC's require PATHWORKS. VMS Workstations with DECwindows Motif Interface require VMS DECwindows Motif V1.0 with VMS V5.5 on corresponding VMS Server.

Lotus 1-2-3

RDB/VMS USERS WIN!

This popular spreadsheet offers industry-leading capabilities with three-dimensional multiple worksheets and integrated business graphics. Lotus 1-2-3 for VMS and ULTRIX/RISC, and Lotus 1-2-3 for ALL-IN-1 are fully compatible, native running versions of the PC-based Lotus 1-2-3 Release 3, with added features for the networked office:

- Keystroke compatibility between PC, VMS and ULTRIX platforms
- File, macro and data sharing between VMS and ULTRIX platforms and the PC's worksheet files stored on a PATHWORKS file service.
- Ability to read information directly from VAX Rdb/VMS databases, plus IBM DB2 data (via VAX VIDA products) without re-keying.
- Access from terminals and windowing workstations.
- New enhanced printer support: Graphics output to Digital PostScript and LJ250 Colour Printer, plus H-P LaserJet.



All the benefits of Lotus 1-2-3 on RISC!

Lotus 1-2-3

The VAX and RISC versions of Lotus 1-2-3 contain identical functionality to that found in the release 3 of the MS-DOS version, with significant enhancements for the Digital networked environment.

Key changes from previous versions of 1-2-3 include support for three-dimensional and very large spreadsheets. To date, users of IBM-PC and PC/XT class machines have been unable to run 1-2-3 Release 3.0; now they can access full Release 3.0 functionality in terminal emulation mode without replacing their machines.

When run via windowing interface, the user can display up to 26 spreadsheets simultaneously, generate live graphics in a separate window, and re-size the spreadsheet window.

The user has the ability to re-map the keyboard layout if desired. This is likely to be a common need for people using terminal emulators on personal computers, where the function key layout doesn't reflect that of a Digital keyboard.

ALL-IN-1 integration

Lotus 1-2-3 for ALL-IN-1 integrates seamlessly with the ALL-IN-1 Integrated Office System, building on the features present in Lotus 1-2-3 for VMS. Spreadsheets may be stored in the ALL-IN-1 file cabinet, and mailed using ALL-IN-1 Electronic Messaging to any other ALL-IN-1 user worldwide.

Maintaining your investment in worksheets

Great care has been taken to enhance the interoperability between versions of 1-2-3. Personal computer-sourced Worksheet files stored in a PATHWORKS file service (i.e. a VMS directory on the VMS version) can be retrieved directly (/FR) by the VMS versions of 1-2-3; no other translation is required.

Database access

Lotus 1-2-3 for VMS and Lotus 1-2-3 for ALL-IN-1 can both read information in VAX Rdb/VMS databases directly using VAX SQL Services (provided in VAX Rdb/VMS). Hence, users of VAX Rdb/VMS do not need to invest time in re-keying (and introducing errors into!) such information before manipulating it in a familiar spreadsheet environment. This release of Lotus 1-2-3 includes DataLens support for Sybase SQL Server and Rdb/VMS.

IBM DB2 databases can also be accessed directly from the VMS versions of 1-2-3 through use of the VAX VIDA (VAX-IBM Data Access) product.

Please note that Personal Use and ClusterWide licences are available for the VMS and ALL-IN-1 versions of Lotus 1-2-3.

Lotus 1-2-3 for ULTRIX/RISC V1.2

CONOLD — CONDIST — 14 DAYS ✓

LICENCE & TK50	**QB-XNWAA-WA**
LICENCE & CD	**QB-XNWAA-WB**

Required Software: ULTRIXV4.2 or later. OSF/Motif for workstations.

Lotus 1-2-3 for VMS V1.5 **SPD 32.20**

CONCURRENT USE LICENCE

CONOLD — CONDIST — 14 DAYS ✓

LICENCE	**QL-YLPAA-3B**
MEDIA	**QA-YLPAA-H5**
or	**QA-YLPAA-HM**

Required Software: VMS V5.4 or later. Optional DECwindows at a minimum of V1.0, KEYSTRIPS AV-PE48A-TK.

Lotus 1-2-3 for ALL-IN-1 V1.5 **SPD 32.21**

CONCURRENT USE LICENCE

CONOLD — CONDIST — 14 DAYS ✓

LICENCE	**QL-YLQEA-3B**
MEDIA	**QA-YLQEA-H5**
or	**QA-YLQEA-HM**

Required Software: VMS V5.4 or later. ALL-IN-1 V2.4 or V3.0. ALL-IN-1 Starter not supported.

CA-20/20 and CA-Vivid

POWER SPREADSHEET AND PRESENTATION GRAPHICS

CA-20/20 Gold

CA-20/20 Gold is a tightly integrated spreadsheet solution for VAX and ALL-IN-1 users, combining CA-20/20 — widely recognised as the *de facto* spreadsheet for the Digital environment — with the CA-20/20 ALL-IN-1 Interface, CA-20/20 Database Connection, CA-20/20 Word Processor Connection and CA-20/20 OpenLink. The result is a powerful combination of advanced spreadsheet functions, database management, project modelling, multi-schedule consolidation and graphics — all available from within ALL-IN-1.

Support for Digital standards

CA-20/20 GOLD offers full compliance with Digital's NAS computing strategy, including DECwindows. PATHWORKS/PCSA and Compound Document Architecture (CDA) enable easy exchange of data, formulae and graphs between CA-20/20 and the NAS desktop.

Full integration with ALL-IN-1

CA-20/20 GOLD provides a tight link between CA-20/20 and ALL-IN-1 with full support for file cabinets, Gold Key conventions, the Interrupt menu and ALL-IN-1 Electronic Messaging facilities, enabling users to mail spreadsheet models.

Integration with word processing packages

CA-20/20 Gold enables users to access word processor files directly from the CA-20/20 Gold/Tools commands, enabling text files to be extracted from WPS-Plus, WordPerfect and MASS-11 word processors and imported into spreadsheet models. Likewise, spreadsheet models are easily integrated into text files. CA-20/20 GOLD reads text files in their native format, which means there is no need to create intermediate ASCII files.

Access to customised applications

CA-20/20 GOLD's OpenLink facility is a user-friendly interface between the spreadsheet and other VAX applications software written in C, FORTRAN and COBOL.

CA-Vivid presentation graphics

CA-Vivid is an easy-to-use, PC-style presentation graphics package for use on VT terminals. Its feature-rich design enables users to capitalise on the persuasive impact of graphics, without having to master the complexities of traditional graphic packages. CA-Vivid suits all presentation requirements — from simple text-only overheads to comprehensive presentations featuring sophisticated colour graphs, bulleted listings and multi-column headings.

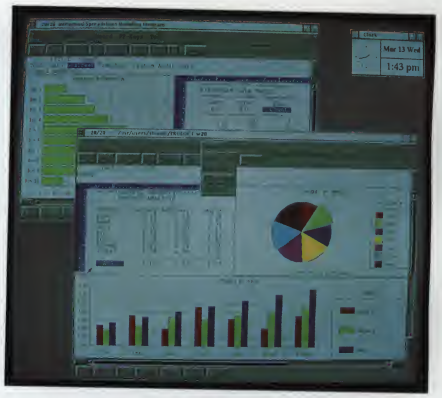
CA-Vivid can be linked to other software packages, including CA-20/20 spreadsheet, enabling instant creation of graphics without re-keying. Users simply import data, choose options from the PC-style menus, and CA-Vivid creates the graphs automatically.

Features include:

- More than 30 business charts and graph types.
- Integration of charts into word processing packages such as WPS-Plus, WordPerfect and Mass 11.
- Complete control over colour, placement and size of labels, captions, annotations and legends.
- Preview WYSIWYG facility and mouse support.
- Ability to output to Colour PostScript, LN03, LN03+, LJ250 and other laser printers, plotters and film recorders, ensuring top-quality graphics on paper, overheads and 35mm slides.
- ALL-IN-1 version of CA-Vivid uses the ALL-IN-1 file cabinet system and Gold Key conventions.

CA-20/20 spreadsheet for ULTRIX RISC

CA-20/20 for Digital's RISC-based computers is the dominant spreadsheet in the open systems market, offering cross-platform spreadsheet functions integrated with graphics, database management, macros, goal-seeking and advanced consolidation facilities.



CA-20/20 uses the OSF/Motif graphical user interface to provide a high-quality and productive working environment.

Based on the industry-standard X Window system, CA-20/20 for ULTRIX RISC DECstations and DECsystems has been engineered to take full advantage of the OSF/Motif graphical user interface and other open systems industry standards, including the ISO Latin 1 character set, SQL, NFS, native X-graphics and GKS.

CA-20/20 for ULTRIX RISC is easy to use and offers CA-20/20's full range of advanced features.

Other Versions

Compatible versions of CA-20/20 are available for PCs, minis, mainframes and workstations, enabling users to share spreadsheet models across multiple platforms and preserve their hardware investments.

CA 20/20 GOLD VMS V3.0 3.0 SPD 32.78 CONOLD — CONDIST — 14 DAYS ✓

CW	B	C	D	E	F	G	H	J	K	L	M	N	Q	S	T	U	V
QL-YQJE9-J																	

Required Software: VMS V5.3 or above, ALL-IN-1 V2.4. See System Support Addendum for other details.

EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
DOCS QA-YQJEA-GZ	MEDIA QA-YQJEA-H

DECdecision

EXTRACTING INFORMATION FROM DATA

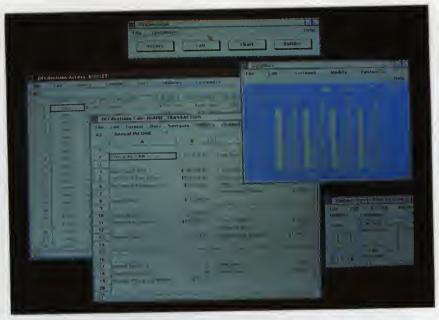
DECdecision is a workstation-based, advanced decision support solution. Running under the DECwindows Motif graphical user interface, it enables you easily to access data, transform it into usable information, and then distribute that information in an appropriate graphic format (such as bar and pie charts) for reports or for inclusion into compound documents.

- A powerful decision support tool that provides a single environment for accessing, processing and interpreting data.
- Provides local and remote access to distributed databases, including VAX Rdb/VMS, DATATRIEVE, RMS, DBMS and databases on IBM mainframes, via the Query access component.
- Data can be exchanged between DECdecision and other applications such as Lotus 1-2-3 and dBASE.
- Fully integrated with CDA (Compound Document Architecture): Digital's LiveLink software provides a data connection between DECwrite documents and DECdecision information.

Included in DECdecision is the CALC facility which is designed for immediate, productive use, both by novices and more experienced spreadsheet users. A window-based spreadsheet, CALC provides over 100 mathematical, statistical and financial functions.

The CHART component of DECdecision enables you to create professional graphics for reports and presentations. CHART provides nine pre-defined types of charts, including Bar, Line, Pie and Histogram, and combinations.

If you find yourself repeatedly carrying out the same sequence of DECdecision tasks and commands, get DECdecision to do it for you via BUILDER. No programming is required: just carry out the sequence of steps once, and BUILDER will 'watch', recording every move you make.



DECdecision is Digital's premier decision support tool.

DECdecision for VMS V1.5	SPD 25.G2
CONCURRENT USE LICENCE	
CONOLD ✓	CONDIST ✓ 14 DAYS ✓
LICENCE	QL-VW3AA-3B
MEDIA	QA-VW3AA-H5

Required Software: VMS V5.4 or later with DECwindows Motif V1.0 Rdb/VMS Runtime V3.0 or later. **Required Hardware:** Minimum of 16 MB of memory. Note that DECdecision contains all the spreadsheet translators to be found as part of the CDA Converter Library, so no additional purchase of these is necessary.

VAX DATATRIEVE

EASY ACCESS TO THE FACTS

VAX DATATRIEVE is a tool for managing and manipulating data either interactively at a terminal or workstation, or from an applications program. By learning a handful of simple, English-like commands and statements, you can interactively retrieve, store, modify, and sort data, and report on it in a variety of ways.

With VAX DATATRIEVE, you can:

- Create data definitions that can be used to store and retrieve data uniformly, either interactively or from application programs.
- Store or modify data in local or remote RMS files, VAX DBMS databases, or VAX Rdb/VMS databases.
- Retrieve data from RMS files, VAX DBMS databases, or VAX Rdb/VMS plus certain IBM-based databases, and display the data on a terminal, write it to a data file, or print it on paper.
- Produce formatted reports using specified selections of data.
- Create pie charts, bar graphs, line graphs, and scatter graphs based on specified selections of data.

Who needs DATATRIEVE?

VAX DATATRIEVE is intended for a broad spectrum of users, including:

- Managers who need ready access to different views of data for decision-making or supervision.
- Organisations requiring a data storage system that can be run by clerical personnel.
- Organisations that need seamless access to data on a distributed network.
- Applications programmers who want to save coding/debugging time and source space by having VAX DATATRIEVE format, sort and convert data as well as look after file handling (e.g. find, open, read and write operations).

VAX DATATRIEVE, with its simple English like statements and Guide Mode tutorial facility, will appeal to the occasional user as well as the professional computer user.

VAX DATATRIEVE V6.0	39	SPD 25.44	CONOLD ✓	CONDIST ✓	14 DAYS ✓
CW	B C D E F G H J K L M N Q S T U V				
QL-898A9-J					

USER BASED LICENCE	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS	TK50 5 Tape M
CONC QL-898AA-3B	DOCS QA-898AA-GZ	MEDIA QA-898AA-H	
PERS QL-898AA-2B			

Required Software: V5.4 or later, CDD/Repository for VMS V5.0.

Software development with COHESION

Digital spends over half of its engineering budget on the development of quality software products. We — and people who develop software on our platforms — also have some unfair advantages:

1) A software application built on any OpenVMS or ULTRIX system can be run on any other processor in the same family, from desktop to data centre and vice versa. Digital helps you reap full benefit on your investment in application code; more importantly, you only need write it once!

2) Applications written in any OpenVMS language can call code written in any other, without the use of assembler. One symbolic debugger is used for testing software written in any one or a combination of languages.

3) Digital provides an array of standard computer languages that obey international standards. Some, such as FORTRAN, COBOL, Ada and C, can highlight use of non-standard code on request, making them ideal candidates for use in any multi-vendor environment.

4) Any OpenVMS application fatal runtime error is given in English, including detail relating to the call hierarchy at point of failure. Faster time to fix.

5) All OpenVMS languages use the standard RMS file system, so files are immediately usable whatever language you use. Where a language does not have standard Relational Database SQL or Rdb precompilers, all the same facilities are available using the standard OpenVMS call interface.

Digital has always provided the best development environment in the industry — and, with the COHESION environment, our lead has widened still further. See overleaf for an overview of what COHESION has to offer.

ORDER NOW
SEE PAGE 4a FOR YOUR LOCAL DIGITAL OFFICE

Help us to help you: Don't forget!
We need the name of a system manager and the CPU serial number whenever you order software.

INSIGHTS

A closer look at COHESION

The COHESION environment is a common environment for the development, re-engineering, deployment and management of software across multiple hardware and software platforms. The COHESION environment consists of a core and a set of tools and services — from Digital and other vendors — specific to individual solutions.

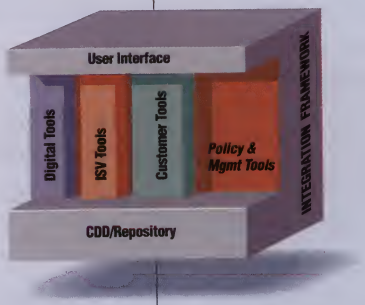
The COHESION solutions core contains common connecting elements and products which enable information sharing and integration across solutions and across the enterprise. The core provides the infrastructure for open development and supports multiple solutions.

With COHESION, complex applications can be built in the OpenVMS, Digital UNIX or PC environment and executed — in whole or in part — on a range of hardware and operating system platforms: OpenVMS, ULTRIX, DEC OSF/1 or other UNIX implementations; MS-DOS, OS/2, Macintosh, or IBM mainframe environments.

The COHESION environment, and the products built on the core, are made up of three key components:

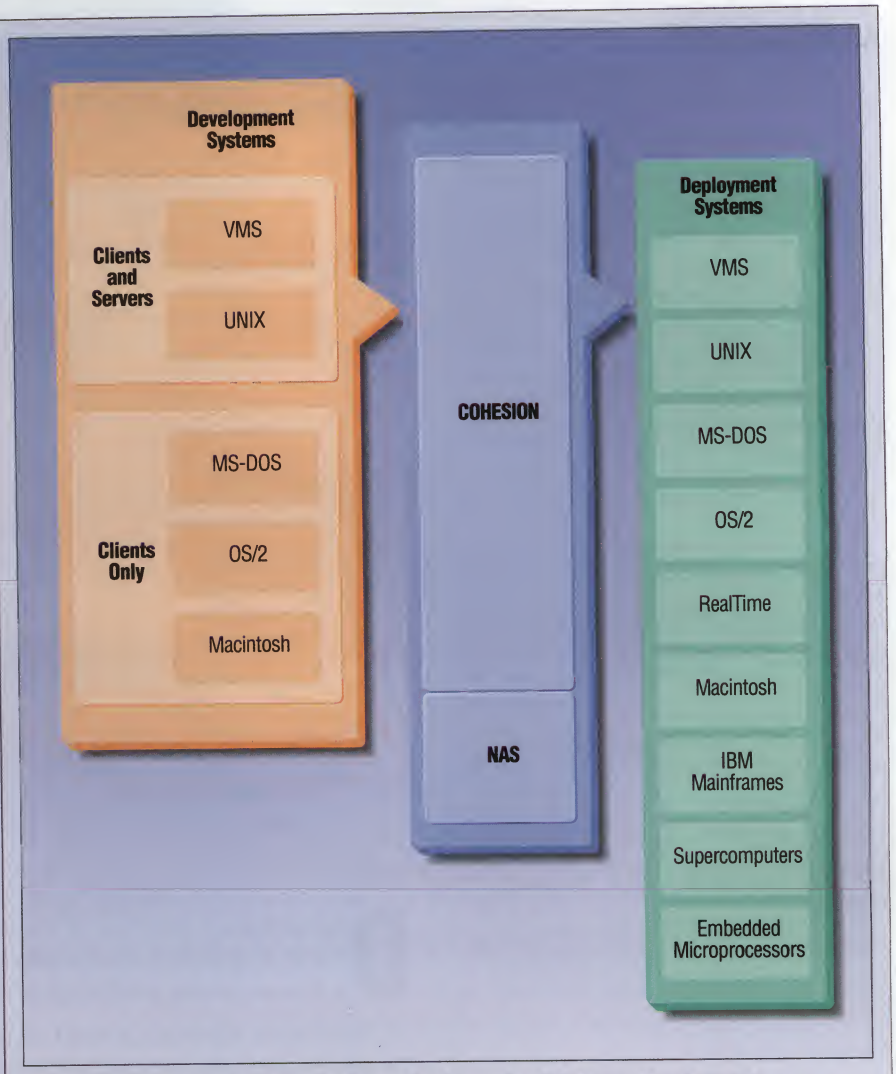
Architectural foundation based on Network Application Support.

NAS provides a set of application programming interfaces and software products, based on industry standards, that enable organisations to integrate, port, and distribute applications across different computer systems. The relationship between NAS and COHESION is bilateral. COHESION is based on NAS, so it functions in a multi-vendor, distributed environment. COHESION also makes it easy to build NAS-compliant applications.



Comprehensive integration.

The COHESION environment provides comprehensive integration to help eliminate redundancy, enhance communication, and promote the sharing of common data and behaviour. In addition to unifying the software development environment, this comprehensive integration also integrates tools and permits information sharing between software development and other computing environments, such as production environments and office computing. This capability enables your development environment to be part of your overall enterprise computing and data management strategy.



COHESION delivers a multi-platform software development and deployment environment.

Complete family of tools that support the entire software development life cycle.

COHESION tools span the entire software development life cycle, from enterprise modelling to software re-engineering, and include project management, design, coding, testing, implementation, maintenance, documentation and communication tools that can be used throughout the development process. By adhering to a strategy built around standards, both independent software vendors and Digital are able to integrate tools into the COHESION environment.

DECdesign

GRAPHICAL DESIGN OF SOFTWARE SYSTEMS

DECdesign is a graphical analysis and design tool which can significantly shorten the time it takes to develop an application. It's a key component of Digital's COHESION environment, an overall software development strategy. V2.0 of DECdesign now offers support for ULTRIX/RISC as well as VAX OpenVMS platforms, and adds new techniques and features:

- New support for object-oriented techniques: Ptech and Coad/Yourdon
- Improved support for structured analysis design techniques: Yourdon, Gane and Sarson, Merise
- Provides model validation, data design assistance, SQL generation, and C++ code generation (with Ptech).
- Supports a single DECdesign database and, on OpenVMS, integrates with CDD/Repository.
- Motif User for ease of use
- Comprehensive online training

DECdesign's advanced features simplify working with complex designs and give developers extensive flexibility in navigating through a design.

Why use such a tool?

Graphically-based analysis and design tools describe an application under development in much the same way that blueprints describe a building under construction.

While there are different views or models of the building under construction (for example, Plumbers, Electricians, etc.), all are required to complete the end result. Such perspectives are best expressed graphically, where a picture is indeed worth a thousand words. The benefit of a CASE tool like DECdesign is the ability to create, modify and re-use the results of the analysis and design phases. This should result in a more cost-effective development effort as well as reducing the cost of on-going maintenance.

Growing choice of techniques

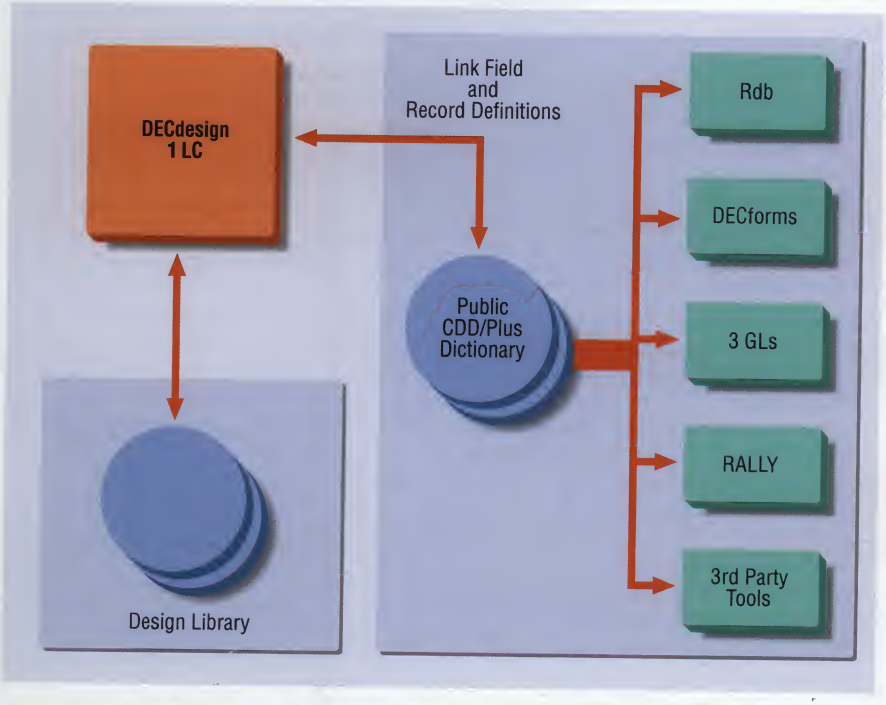
With V2.0, Yourdon, Gane and Sarson, and Merise techniques have been enhanced to give full support for conceptual, logical, and physical data modelling.

A new DECdesign technique, the Ptech technique from Associative Design Technology Inc., has been integrated with the Ptech C++ code generator. Alternatively using the new Coad/Yourdon technique, the user can generate C++ code for Class and Class & Object definitions, which provides the user with a base level of C++ code from which to build the application.

Integrated with the CDD/Repository

DECdesign on OpenVMS is integrated with the VAX CDD/Repository, allowing data definitions to be re-used throughout the development life-cycle from one consistent, up-to-date location.

On ULTRIX/RISC platforms, DECdesign stores objects in the DEC Object/DB database.



DECdesign on OpenVMS's use of a Public Dictionary allows integration of a wide variety of products.

Ordering

DECdesign is a modular product. The DECdesign Platform licence and media is required as the base software, plus the licence for at least one distinct technique. It is recommended that you also order the documentation for that technique.

DECdesign Platform ULT/RISC V2.0a SPD 40.61		
CONCURRENT USE LICENCE		
CONOLD — CONDIST ✓ 14 DAYS ✓		
LICENCE	QL-MH6AC-3B	
MEDIA	QA-MH6AA-H5	(TK50)
or	QA-MH6AA-HM	(Tape)
DOCS	QA-MH6AA-GZ	

Required Software: See SPD for ULTRIX and other requirements

DECdesign Platform OpenVMS V2.0a SPD 29.29		
CONCURRENT USE LICENCE		
CONOLD ✓ CONDIST ✓ 14 DAYS ✓		
LICENCE	QL-XD1AA-3B	
MEDIA	QA-XD1AA-H5	(TK50)
or	QA-XD1AA-HM	(Tape)
DOCS	QA-XD1AA-GZ	

Required Software: VMS V5.4-3 – 5.5-1, CDD/Repository V5.1, DECwindows Motif V1.1.

DECdesign Techniques ULT/RISC V2.0a	
CONCURRENT USE LICENCE	
CONOLD — CONDIST ✓ 14 DAYS ✓	
MERISE Tech. ULT/RISC	QL-MHBAC-3B
Yourdon Tech. ULT/RISC	QL-MHCAC-3B
Gane & Sarson Tech. ULT/RISC	QL-MHAAC-3B
Coad/Yourdon Tech. ULT/RISC	QL-MHFAC-3B
Ptech Tech. ULT/RISC	QL-MHDAC-3B

Required Software: DECdesign Platform ULT/RISC V2.0.

DECdesign Yourdon Techs OpenVMS V2.0a SPD 29.29	
CONCURRENT USE LICENCE	
CONOLD ✓ CONDIST ✓ 14 DAYS ✓	
Gane & Sarson Tech. OpenVMS	QL-XALAA-3B
Yourdon Tech. OpenVMS	QL-XAKAA-3B
MERISE Tech. OpenVMS	QL-XAMAA-3B
Coad/Yourdon Tech. OpenVMS	QL-MH8AA-3B
Ptech Tech. OpenVMS	QL-MH7AA-3B

Required Software: DECdesign Platform OpenVMS V2.0.

DECplan

BRINGING TIME AND RESOURCES UNDER CONTROL

NEW VERSIONS

DECplan ULTRIX & DECplan VMS

DECplan is a software tool for personal time management, co-operative activity management, and project management. Its features include:

- Time Management including tracking tasks, meetings and commitments; breaking down work into smaller tasks; setting and maintaining priorities; recording your accomplishments.
- Project Management including defining work flow, assigning and sharing resources effectively, scheduling work, cost control and the ability to view and analyse project information.
- Integrated project communications with electronic mail, VAX Notes, and CDA (Compound Document Architecture).
- Project Management made active through personal calendars and 'to-do' lists.
- Easy meeting scheduling and co-ordination.
- Flexible displays that let different users view the same data in the best format for their needs.
- Time management fully compatible with ALL-IN-1.
- Callable interface that enables partners to call DECplan functions from a program.

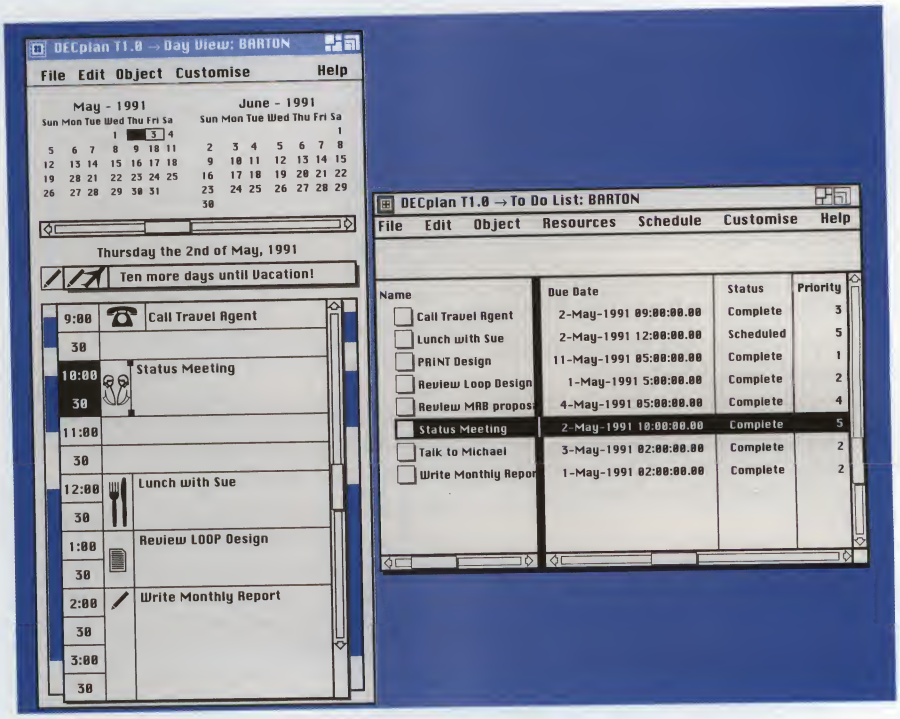
DECplan and DECplan Time Manager provide an architecture that provides individuals, workgroups, and departments, right up to corporate level, with a common set of tools to effectively manage and control resources.

Time Management

As the world, especially the workplace, becomes more complex, you have more to remember and co-ordinate. Meetings and other commitments often conflict, forcing you to reschedule them. Priorities shift as new information becomes available. Work needs to be defined before you can estimate how long it will take to accomplish. You need to record these events to accurately assess and report your status. All these things make up your need for time management.

Project Management

The time management needs described previously become even more important when managing projects. Whilst keeping track of your own work, you also keep track of the work of others, the project schedule, and the cost of doing the work. The uses of DECplan include:



DECplan Time Manager puts time on your side.

Defining workflow:

DECplan lets you manage the breakdown of work into easily-defined tasks, determine the order of the tasks, and the dependencies between tasks. In addition it lets you manage your project in relation to other projects. It supports a range of precedence relationships and allows you to display dates and annotations.

Assigning and sharing resources effectively:

The success of a project often depends on the effective use of resources. DECplan allows you to assign people to tasks, and helps you make sure their skills are matched to the work. It also helps ensure that their workload is appropriate, and that they do not have periods of unnecessary idle time.

Scheduling work:

After a project is started, the schedule becomes one of the primary tools for managing work. Work, resources and dates all come together to define progress on the project. DECplan supports scheduling from the early stages of a project, before any resources have been assigned to the later stages, when you need to update the schedule with actual dates. It can handle complex relationships between tasks, dates, and resources to produce the most efficient schedule.

Cost control:

Cost control is an integral part of project management. DECplan provides a range of cost and earned-value formulae; in addition, it provides security for sensitive cost information.

View and analyse project information:

You depend on accurate, well-formatted reports and charts to monitor a project's progress. DECplan allows the production not only of standard reports, but also of reports for a specific purpose or audience.

Interactive time and project management:

Up-to-date information is critical in monitoring project status. Interaction between the time and project management areas helps ensure current information for the individual project member and for the project manager.

NEW VERSIONS

DECplan for ULTRIX & VMS

Ordering information

DECplan server for VMS is a prerequisite, while the access parts are available for both ULTRIX and VMS in full client DECplan project management and Time Manager form. The full client is used where project management, including critical path analysis, is required, whereas the Time Manager gives a simple individual time management capability. Since the Time Manager is a subset of the full DECplan project management capability, Digital has provided an upgrade path from the Time Manager to client DECplan project management.

ULTRIX Time Manager V1.2 — SPD 31.28
PERSONAL USE LICENCE
CONOLD ✓ CONDIST — 14 DAYS ✓
LICENCE QL-XC9AC-2B
MEDIA QA-XC5AA-H5

Required Software: ULTRIX V4.2a–4.3, ULTRIX Worksystem Software V4.2a - V4.3, TCP/IP V4.2 or DECnet-ULTRIX V4.2.

DECplan ULTRIX Client V1.2 — SPD 31.29
PERSONAL USE LICENCE
CONOLD — CONDIST — 14 DAYS ✓
LICENCE QL-XC7AC-2B
MEDIA QA-XC5AA-H5

Required Software: ULTRIX V4.2a–4.3, ULTRIX Worksystem Software V4.2a - V4.3, TCP/IP V4.2 or DECnet-ULTRIX V4.2.

VMS Time Manager V1.2 — SPD 31.27
PERSONAL USE LICENCE
CONOLD ✓ CONDIST ✓ 14 DAYS ✓
LICENCE QL-XC8AA-2B
MEDIA QA-YPBAA-H5

Required Software: VMS V5.4–V5.5-2, VMS DECwindows V2.0 or later.

DECplan VMS Client V1.2 — SPD 33.09
PERSONAL USE LICENCE
CONOLD ✓ CONDIST ✓ 14 DAYS ✓
LICENCE QL-XC6AA-2B
MEDIA QA-YPBAA-H5

Required Software: VMS V5.4–V5.5-2, VMS DECwindows V2.0 or later.

DECplan VMS Server V1.2 — 3U — SPD 33.09 — CONOLD ✓ CONDIST ✓ 14 DAYS ✓
CW B C D E F G H J K L M N Q S T U V
QL-YPBA9-J

Required Software: VMS V5.4–V5.5-2, VMS DECwindows V2.0 or later, VAX Rdb/VMS Runtime V4.0a–V4.1.

EXTRA DOCUMENTATION SETS
DOCS QA-YPBAA-GZ

MEDIA AND DOCS — TK50 5 Tape M
MEDIA QA-YPBAA-H

KAP Code Optimisers

THE BEST - AUTOMATICALLY!

Kuck and Associates' automatic optimisation technology, KAP, in conjunction with Digital's compilers, has dramatically improved the SPECmark ratings when applications are run on VAX VMS and ULTRIX/RISC product families. Digital is pleased to offer four products with the KAP technology to accommodate the C and FORTRAN languages:

- KAP for VAX FORTRAN on VMS
- KAP for DEC FORTRAN on ULTRIX
- KAP for VAX C on VMS
- KAP for ULTRIX C

To optimise code, KAP analyses both the program and the architecture on which the program will run. KAP's optimisations are targeted to exploit the capabilities of the compiler, chip set, operating system and language dialect for Digital. The KAP optimiser works as a source-to-source pre-processor which restructures code for improved performance. The conversion process is designed to operate effectively without user intervention, but KAP also provides a large set of options which the advanced user can use to customise KAP transformations for a particular application program.

KAP for DEC FORTRAN V1.0 — 3U — SPD 38.49 — CONOLD — CONDIST — 14 DAYS ✓
U/R A C N S 2 3 4 D
QL-MJ2A -AA

Required Software: ULTRIX/RISC V4.0 – 4.2a, DEC FORTRAN V3.0 – V3.1.

EXTRA DOCUMENTATION SETS
DOCS QA-MJ2AA-GZ

MEDIA AND DOCS — TK50 5 Tape M
MEDIA QA-MJ2AA-H

KAP for VAX FORTRAN V1.0 — 3U — SPD 38.50 — CONOLD — CONDIST — 14 DAYS ✓
CW B C D E F G H J K L M N Q S T U V
QL-MJ5A9-J

Required Software: VMS V5.2 or greater, VAX FORTRAN V5.0 – V5.7.

EXTRA DOCUMENTATION SETS
DOCS QA-MJ5AA-GZ

MEDIA AND DOCS — TK50 5 Tape M
MEDIA QA-MJ5AA-H

DEC VUIT

NOT AVAILABLE IN BENELUX

OSF/MOTIF USER INTERFACE CREATION TOOL

DEC VUIT is intended to increase programmer productivity during the development of Motif application interfaces. Running under VMS or ULTRIX, DEC VUIT offers the ability:

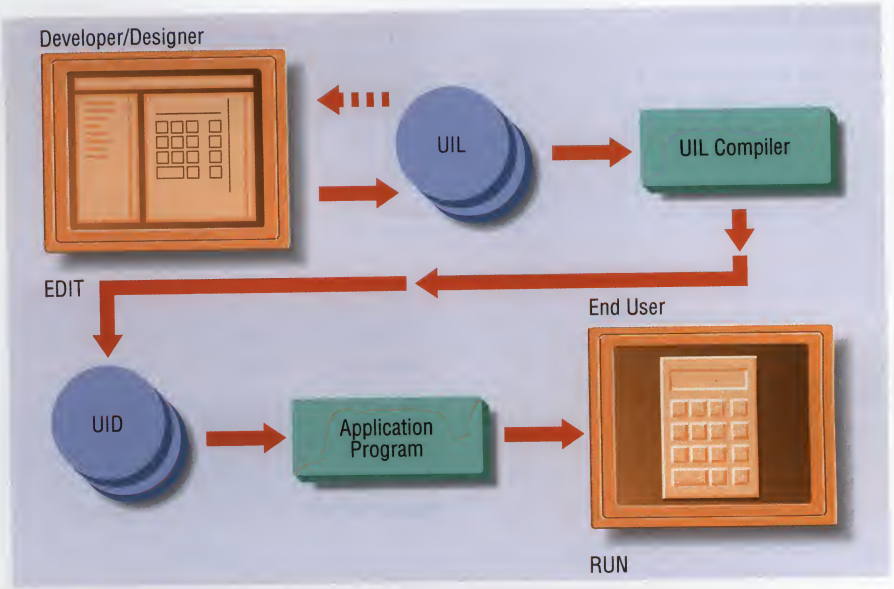
- To create Motif-conforming applications graphically.
- To design and prototype rapidly, using a WYSIWYG editor.
- To separate form from function, which speeds development.

User interface programming is typically 50% of the code in an application, but it takes up to 90% of the programmer's time. Programmers and designers need more time to design, prototype, and build applications and interfaces that meet the needs of the user environment, with less time spent coding.

DEC VUIT is designed to fill the needs of software developers for quickly developing graphical interfaces for a variety of applications, and creating XUI-compliant user interfaces according to the Motif standards.

Major Functionality

DEC VUIT is an interactive editor for constructing Motif interfaces comprised of Motif Toolkit widgets. Just as in User Interface Language (UIL), DEC VUIT allows users to specify the form of their application interface separately from its function. In contrast to UIL, which employs a language-based declarative specification of the user interface definition, DEC VUIT possesses a what-you-see-is-what-you-get (WYSIWYG) style interface.



DEC VUIT increases productivity during the development of Motif applications.

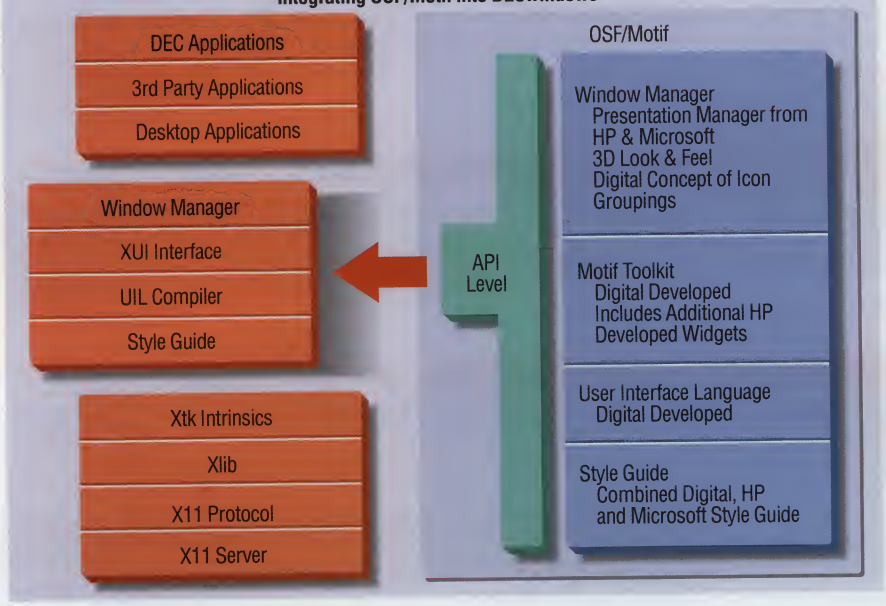
Interfaces generated conform to the XUI style guide, and also provide a simulation capability to allow users to view their prototype without worrying about the technical bindings of the interface to the "function".

DEC VUIT is designed primarily for software developers. The prototyping capability in DEC VUIT can be used and implemented by non-technical professionals; however, it is assumed a higher level of abstraction is needed for the designing audience over the longer term.

Since DEC VUIT generates industry standard OSF/Motif UIL, not a proprietary language, the interface built using DEC VUIT is portable to any other platform that supports the OSF/Motif environment.

NEW! Now VUIT is available for SUN workstations for use with our new Motif user interface.

Integrating OSF/Motif into DECwindows



DEC VUIT for SUN V2.0	SPD 38.45
PERSONAL USE LICENCE	
CONOLD — CONDIST — 14 DAYS ✓	
LICENCE	QL-XCZAJ-2B
MEDIA	QA-XCZAA-HP

Required Software: SUN O/S V4.1.1 and either OPEN Windows V2.0 or XVersion II, release 4.

DEC VUIT for VMS V2.0	SPD 32.09
PERSONAL USE LICENCE	
CONOLD ✓ CONDIST ✓ 14 DAYS ✓	
LICENCE	QL-YHCAA-2B
MEDIA	QA-YHCAA-H5

Required Software: VMS 5.4, VMS DECwindows Motif V1.0.

DEC VUIT for ULTRIX/RISC V2.0b	SPD 42.51
PERSONAL USE LICENCE	
CONOLD ✓ CONDIST ✓ 14 DAYS ✓	
LICENCE	QL-GE9AC-2B
MEDIA	QA-GE9AA-H5 (TK50)

Required Software: ULTRIX Worksystem Software V4.0 – V4.2a and Motif Developer's Kit V1.1. or ULTRIX DECwindows for OSF/Motif V1.1-3 (included in UWS V4.2c onwards).

DEC FUSE

NEW PRODUCT

A FRIENDLY UNIFIED SOFTWARE ENVIRONMENT

DEC FUSE Pack

DEC FUSE is a workstation-based programming environment built upon existing UNIX commands and utilities and based on X11-OSF/Motif interface standards.

An important addition to Digital's COHESION environment for ULTRIX and Sun, DEC FUSE provides an integrated solution for software development and maintenance on RISC workstations and servers at an entry-level cost per seat. It will appeal to both professional programmers who are new to UNIX, as well as those familiar with UNIX who need an integrated suite of development tools. These tools include:

- DEC FUSE Editor

  Provides mouse/button-oriented editing, which allows programmers to set breakpoint or trace 'annotations' that appear in a margin column next to source code. Also integrates GNU Emacs from the Free Software Foundation and 'vi'.

- DEC FUSE Debugger

  A graphically-based enhanced UNIX debugging facility, the DEC FUSE Debugger offers display areas for editing, debugging and commands. It transforms a set of 'dbx' debugger commands into push-buttons.

- DEC FUSE Program Builder

  The program builder is based on the UNIX 'make' utility, which serves as an aid in compiling and building application software.

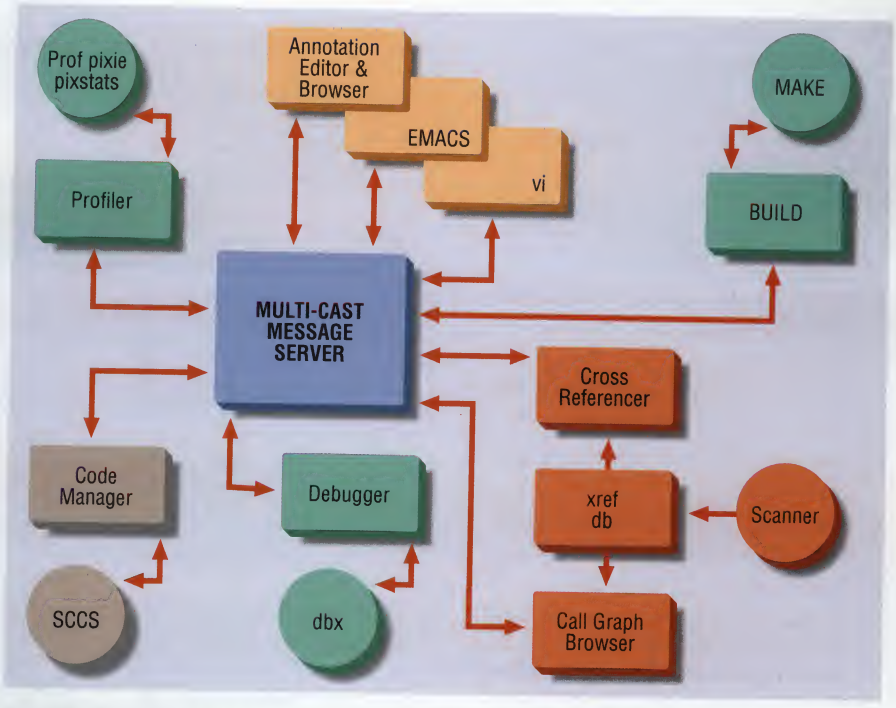
- DEC FUSE Call Graph Browser

  This provides a mouse-sensitive graphical display of the call hierarchy of application software — in essence, a picture of the program-calling structure.

- DEC FUSE Profiler

  The Profiler offers post-processing capabilities for RISC/ULTRIX 'prof', 'pixie' and 'pixstats' — utilities that provide support for program optimisation.

- DEC FUSE Cross-Referencer and Code Manager (based on sccs).



When a Graphical User Interface takes over from a Command Line Interface...

But why FUSE?

FUSE's dynamic, graphically oriented programming environment increases the productivity of individual programmers, enabling them to concentrate on the task in hand without concerning themselves about tool communications and system commands. Being built on UNIX commands and utilities, FUSE protects investments in tools and training while providing migration to a more productive environment.

FUSE's support for simple makefile generation and graphical display of makefile dependencies reduces human error and speeds development. Integration with sccs for code management ensures use of correct versions of code modules.

Compatibility

DEC FUSE works with PASCAL for ULTRIX, FORTRAN for ULTRIX, DEC FORTRAN for ULTRIX, RISC C (cc) (the C that ships with ULTRIX/RISC), and DEC C for ULTRIX.

Optional Module for DEC C++

DEC FUSE Support for DEC C++ is available as an add-on option to DEC FUSE for ULTRIX RISC. This product provides DEC FUSE based programming support for the Digital-developed DEC C++ for ULTRIX compiler.

DEC FUSE Pack Integrated Tools

DEC FUSE Pack is an integrated package of Digital's most powerful development tools: DEC FUSE, DEC Test Manager, and DEC VUIT. DEC FUSE Pack combines the benefit of DEC FUSE with sophisticated regression-testing and the ability to create OSF/Motif conforming applications. DEC FUSE Pack licence for DECstation 2100, 3100, 51**, 50** is QP-LCCAA-01, and for DECstation 52** is QP-LCCAA-02. Media is QA-MRUAA-H5. Licences are also available for DECsystems.

DEC FUSE for ULTRIX/RISC V1.1	SPD 33.66
CONCURRENT USE LICENCE	
CONOLD ✓ CONDIST ✓ 14 DAYS ✓	
LICENCE	QL-GDMAC-3B
MEDIA	QA-GDMAA-H5/M

Required Software: ULTRIX V4.2 or ULTRIX Worksystem Software V4.2, DECwindows Developers Kit for OSF/Motif V1.1.

DEC FUSE Support for DEC C++ V1.1	SPD 37.88
CONCURRENT USE LICENCE	
CONOLD — CONDIST ✓ 14 DAYS ✓	
LICENCE	QL-MF9AC-3B
MEDIA	QA-MF9AA-H5

Required Software: DEC FUSE for ULTRIX/RISC V1.1 and DEC C++ for ULTRIX V1.0.

DEC FUSE for SUN V1.1	SPD 37.25
CONCURRENT USE LICENCE	
CONOLD — CONDIST — 14 DAYS ✓	
LICENCE	QL-MAVAJ-3B
MEDIA	QA-MAVAA-HP

Required Software: Sun O/S, release 4.1.1, DECwindows Motif.

DECset Software Engineering Tools

THE RIGHT TOOLS FOR THE JOB

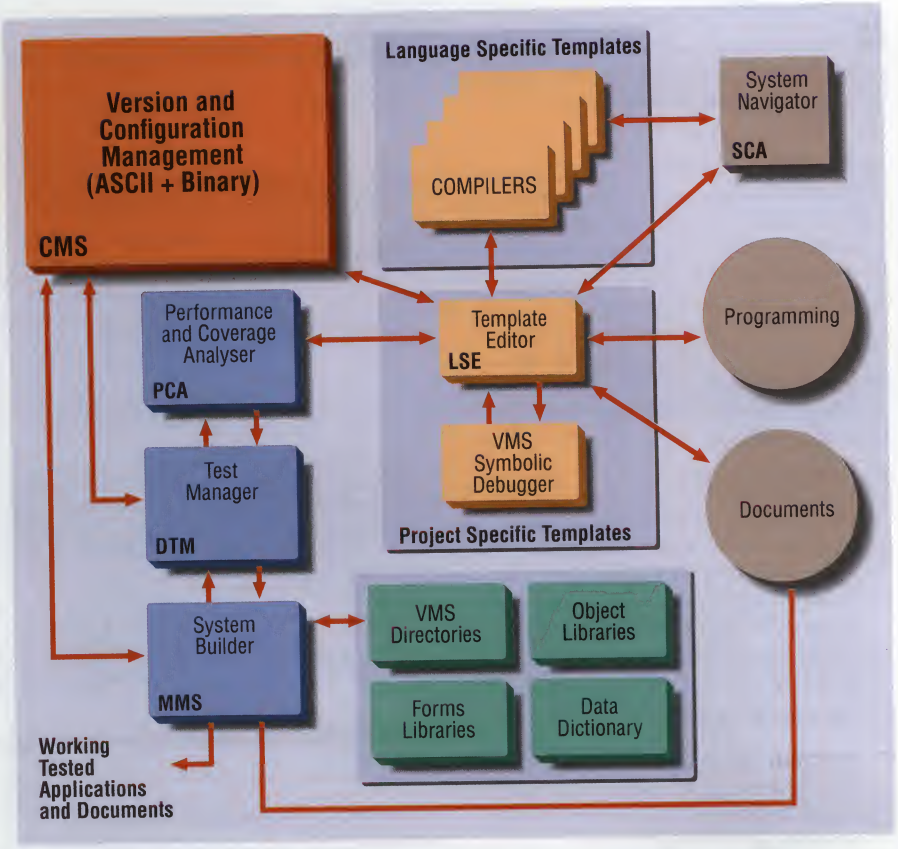
The DECset (DEC Software Engineering Tools) packages offer professional developers truly integrated, high-quality CASE products that address the fundamentals of software engineering. DECset for VMS includes:

- DECset Version and Configuration Control: DEC/CMS Code Management System.
- DECset System Builder: DEC/MMS Module Management System.
- DECset Multi-language Syntax Template Based Editor: DEC LSE Language-Sensitive Editor.
- DECset Static Analysis Tool: DEC SCA Source Code Analyser.
- DECset Regression Test Manager: DEC DTM DEC Test Manager.
- DECset Dynamic Analysis (Performance Optimiser) and Test Coverage Tool: DEC PCA Performance and Coverage Analyser.

The best of working together

Each DECset component is a powerful tool in its own right, finely optimised for its specific function. Used together as part of a total CASE approach, the DECset tools combine to create a whole that is very much greater than the sum of the parts in every respect — except the price. (You'll find that it costs less to purchase the DECset tools as a package than as separate components.)

The DECset package is not a bundling of loosely associated products. The components have been carefully designed to integrate with one another and other Digital and ISV (Independent Software Vendor) tools to a very fine level, as well as offering comprehensive capabilities in their own right. The components have been used extensively by Digital's Software Engineering Organisation, as well as many independent software vendors and customers.



DECset is an integrated Program Development Environment.

The six products in the package are also described separately. As you read you may find the diagram on this page a useful reference in understanding how the individual products relate to one another.

DECwindows Motif interfaces

Interfaces to most of the DECset tools have been revised to utilise DECwindows Motif, (subject to appropriate hardware support), making the products faster to learn and easier to use. The 'character cell' based interface has also been retained to preserve your current investment.

> It's hard to put your finger on one or two specifics about these products; it's a thousand little things that make them so much better than anything else.
>
> Neil Baldridge of Compushare on DECset. (a subsidiary of Lockheed Aircraft)

DECset for ULTRIX V11.0a — 3U — SPD 33.86 — CONOLD ✓ — CONDIST ✓ — 14 DAYS ✓

U/R	A	C	N	S	2	3	4	D
QL-XAZA	-AA							

EXTRA DOCUMENTATION SETS — DOCS QA-XAZAA-GZ

MEDIA AND DOCS — TK50 5 Tape M — MEDIA QA-XAZAA-H

Required Software: ULTRIX/RISC V4.2c – V4.3.

DECset for VMS V11.0a — 3U — SPD 27.07 — CONOLD ✓ — CONDIST ✓ — 14 DAYS ✓

CW	B	C	D	E	F	G	H	J	K	L	M	N	Q	S	T	U	V
QL-965A9-J																	

USER BASED LICENCE — PERS QL-965AA-2B

EXTRA DOCUMENTATION SETS — DOCS QA-965AA-GZ

MEDIA AND DOCS — TK50 5 Tape M — MEDIA QA-965AA-H

Required Software: VMS V5.4 – 5.5, in a workstation environment DECwindows Motif V1.0.

DEC LSE/SCA LANGUAGE-SENSITIVE EDITOR

IT SPEAKS YOUR LANGUAGE

DEC LSE/SCA, a component of the VMS program development environment, is an advanced text editor and analysis tool designed specifically to help software engineers develop and maintain program code and assist in the preparation of technical documentation. It offers:

- Integrated Source Code Analyser, previously available only as a separate product, at no extra charge.
- Faster entry of source code, via language-specific source code templates.
- Creation, processing, compilation and verification of programs; implementation instructions for non-Digital compilers also documented.
- Supports VAX Ada, VAX BASIC, VAX BLISS-32, VAX C, VAX COBOL, VAX FORTRAN, VAX PASCAL, VAX PL/1, VAX CDD/PLUS, VAX Rdb/VMS (certain features), VAX SCAN and VAX Document.
- Program Design Facility (PDF) Support.

Simple interface, powerful potential.

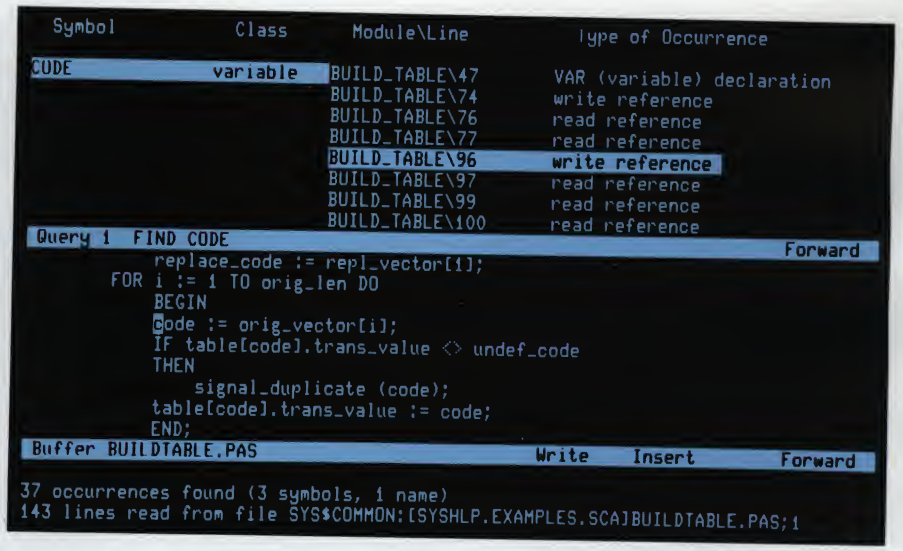
DEC LSE/SCA was designed to meet not only the primary requirements of the software engineer, but also the more advanced needs of the developer:

- Language-sensitive features that improve developer productivity.
- Support for multiple languages with a consistent user interface.
- Support for user extensions.
- Parallel editing when testing and checking programs.

Get it right... first time.

At first sight, the provision of templates may not appear to explain the great time-savings possible with DEC LSE/SCA. In practice, however, you'll find that you invoke the relevant compiler fewer times — because more is right first time round. Reports of a 40% productivity gain on the edit-compile-review cycle seem to be the norm.

It all adds up to significantly increased productivity.



DEC LSE/SCA allows the programmer to have a complete picture of a software system under review.

Source Code Analysis

The DEC Source Code Analyser (SCA) portion of LSE/SCA is an interactive, multi-language, multi-module source code analysis tool designed to help software engineers fully understand complex software systems. The SCA portion of LSE/SCA:

- Allows the programmer to view the call hierarchy of a software system.
- Provides interactive interrogation of variables and module references in source code; static analysis of source code; analysis of subroutine call consistency.
- Navigation and cross referencing across all application system modules.
- Supports pseudocode processing on VAX Ada, VAX BASIC, VAX Bliss-32, VAX C, VAX COBOL, VAX FORTRAN, VAX PASCAL.

Put your code under the microscope

LSE/SCA can be used to analyse an entire system, not just individual modules, and is exceptionally useful during the development and maintenance phases of a project. Programmers who are familiarising themselves with an existing software system will find LSE/SCA an indispensable tool.

> There can be no doubt that it [LSE] offers some of the most advanced features available today for a programmer on a VAX. If you program under VMS, you really should have a good look at LSE and see if it fits into your work environment, and judge for yourself.
>
> — Jeff Smith, in a DEC USER article

A developer working on the VMS Run-Time Library (approximately 500,000 lines of code) 'suddenly discovered' the LSE/SCA toolset. He built the SCA library from the RTL source code and started using it as a support facility. His comment: 'I feel like a blind man suddenly able to see!'

It's there if you need it

Program Design Facility (PDF) is a set of enhancements that allow the programmer to integrate design pseudocode and related information in the source code of an application (as specially tagged comments). It has been designed for use by — but not limited to — developers who need to produce DoD-STD-2167a detailed design reports.

DEC LSE/SCA V4.0 3U SPD 27.07 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

CW B C D E F G H J K L M N Q S T U V

QL-057A9-J

USER BASED LICENCE	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS TK50 5 Tape M
PERS QL-057AA-2B	DOCS QA-965AA-GZ	MEDIA QA-965AA-H

Required Software: VMS V5.4 – V5.5.

VAX DEC/CMS CODE MANAGEMENT SYSTEM

SOFTWARE TO MANAGE SOFTWARE

If you're a software developer, you're undoubtedly aware that one of the biggest challenges in software development is managing the development process itself. As different team members work on different phases and different modules, it soon becomes clear that you need a powerful code management system that presides over all aspects of the project. In short, you need DEC/CMS (Code Management System).

- **An effective tool in tackling some of the fundamental management problems of software engineering.**
- **Significantly increases productivity at both the individual and group level by simplifying the management of development files.**
- **Tightly integrated with other DECset products and, to varying degrees, with products from independent software vendors.**

Managing code, solving problems.

Software systems are usually assembled from a number of building blocks: some re-used many times, some varying to a certain degree from release to release.

Managing access to program code, associating components of the system with one another (including specific versions and variants) and knowing at any given time the current status of each element of the project is an enormous undertaking.

The problems are complex. For instance, if two or more people need access to the same module (or if the same person wants to explore several approaches to the task), the development process can quickly go out of control because several separate modifications of the same module suddenly appear.

These and other configuration-related problems are tackled directly by DEC/CMS, an 'industrial strength' tool.

Powerful features

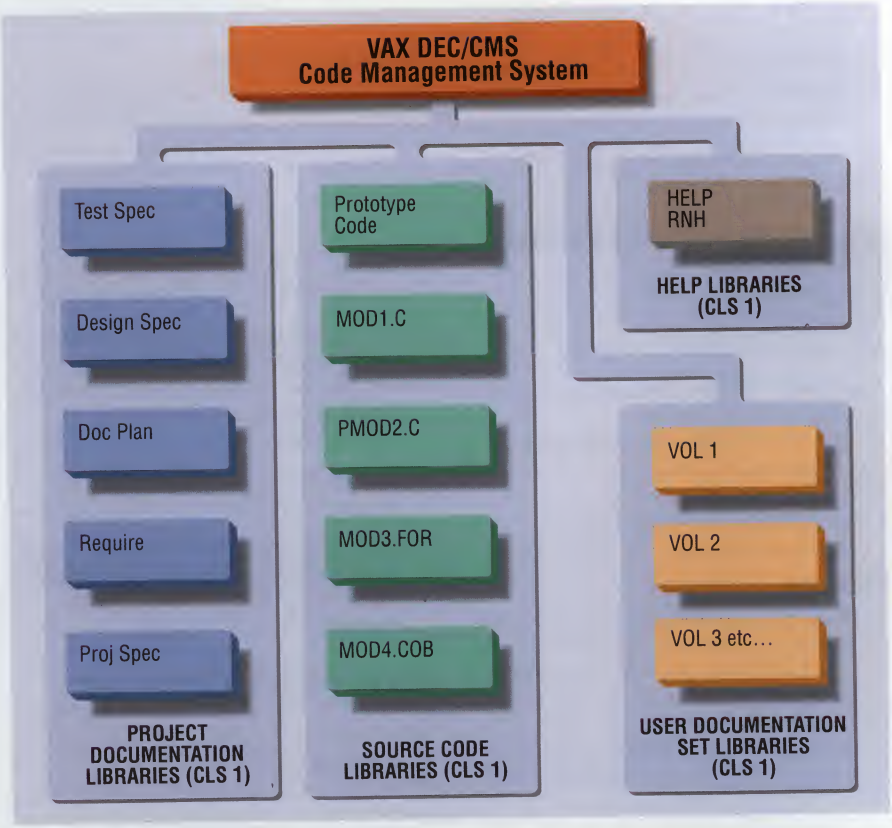
- Helps with the management of all files during software development, and documents their history.
- Maintains source files in a project library; enables recovery of earlier generations of files; manages current or separately developed modifications; monitors all movements into or out of the data library.
- Tracks the origin of any line in a file, providing the author's name and time of modification.
- Works in conjunction with all programming languages and editors.
- Development files may be ASCII (documentation, source code, command files, MMS description files) or binary (object code, executable code, graphics images).
- Fully integrated with other DECset products and, to varying degrees, with the products of independent software vendors.
- Association of related elements by function or by configuration, including milestone and baseline tracking.
- Windowing interface improves usability and shortens learning curve.

A thoroughly proven solution.

In the BEN and around the world, CMS is used in developing systems in the fields of avionics, finance, manufacturing, science and research.

We at Digital use CMS ourselves. In fact, CMS is used by the VMS engineering team to provide the control needed to manage over 200 developers, working on 6 million lines of code where an access is made to the development software every 29 seconds and an update or modification every 13 minutes. Remember too, that Digital also supports multiple versions of VMS in order to meet customers' requirements. None of this would be possible without the help of CMS.

Used alone, CMS is an extremely effective product. When used in conjunction with the other DECset tools there is no other product on the market that can match its functionality or effectiveness.



VAX DEC/CMS maintains a complete listing of a project, providing a full audit of software development.

VAX DEC/CMS V3.5 3U SPD 27.07 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

CW	B	C	D	E	F	G	H	J	K	L	M	N	Q	S	T	U	V
QL-007A9-J																	

USER BASED LICENCE	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS	TK50 5 Tape M
PERS QL-007AA-2B	DOCS QA-965AA-GZ	MEDIA QA-965AA-H	

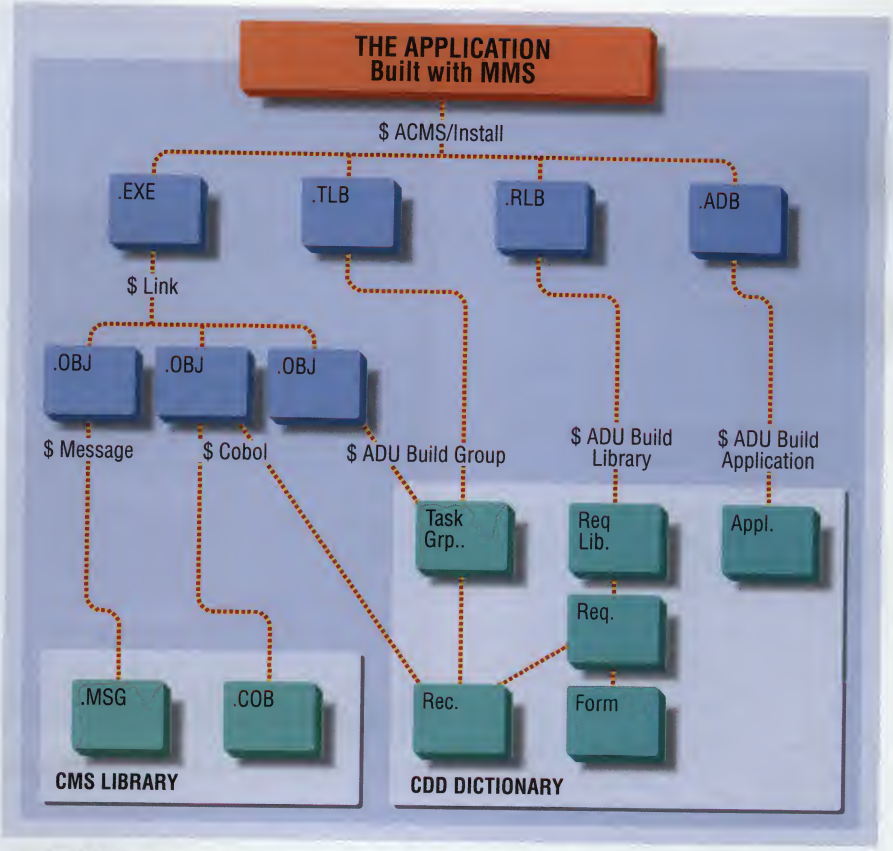
Required Software: VMS V5.4 – V5.5.

VAX DEC/MMS MODULE MANAGEMENT SYSTEM

PUTTING IT ALL TOGETHER

VAX DEC/MMS (Module Management System) is a software development tool designed to maximise programmer productivity, improve software quality and speed up its development. It achieves these goals by tracking changes in individual software modules during the development and maintenance phases, enabling the software application to be re-constructed automatically incorporating the latest versions of all its modules.

- Saves valuable programming and system time by minimising the time required to build a complete software system.
- Maintains a record of the software system structure.
- Determines the actions required to construct new versions of applications; rebuilds only what is required, not necessarily the full system.
- May be used in conjunction with all VAX programming languages.



VAX DEC/MMS constructs applications quickly, by ensuring that only the modules changed since last system build get recompiled and relinked.

The diagram featured here represents the architecture of a software system. During the development and maintenance phases, where bugs are being fixed and enhancements made, constant reference to the software's architecture is necessary in order to ensure that the system can correctly be re-constructed, incorporating all relevant modifications.

By using an ASCII description of the architecture, MMS detects which components of an application have been modified and updates them together with their dependent modules. In addition, any other appropriate actions — for example, testing, notification to project leader, documentation updates and so on — could also be initiated automatically.

Problem-solving power

To use the diagram as an example, suppose that a problem is reported in 'The Application'. (We have chosen an Application Control and Management System (Transaction Processing) as our example.)

The software engineer traces the problem down through the components '.TLB' and 'Task Grp.' to 'Rec.'. The 'Rec.' problem is fixed and he then re-traces his steps (re-building as he goes) back up to 'The Application'. It's easy to imagine how some ancillary actions — for instance, tracing the relevant paths to re-build the Cobol file, the 'ADU Build Group' and the '.RLB' file — might be overlooked. Moreover, the hierarchy dictates some synchronisation considerations. 'Dumb' command files are inefficient.

Building the system 'right'

MMS helps software engineering teams to 'build the systems right'. It addresses a real software engineering requirement: after all, if your developers are spending time maintaining their own tools to address this problem, then they're not working on the task in hand — developing the target application.

Additional features

- Optional access to VMS library, CMS library and Dictionary products.
- MMS description (architecture) file may be stored in the CMS library.
- Provides a 'what if' capability so that software engineers can decide whether to 'build now' or 'build later'.
- Provides on optional software switch to allow SCA cross reference data to generated automatically.
- Other appropriate actions may be automatically initiated as part of the system build.
- May be used to build documentation.

VAX DEC/MMS V2.6 3U SPD 27.07 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

CW B C D E F G H J K L M N Q S T U V

QL-VADA9-J

USER BASED LICENCE	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS TK50 5 Tape M
PERS QL-VADAA-2B	DOCS QA-965AA-GZ	MEDIA QA-965AA-H

Required Software: VMS V5.4 – V5.5.

DEC PCA PERFORMANCE AND COVERAGE ANALYZER

TUNE YOUR PROGRAMS FOR PERFORMANCE

DEC PCA is a DECset dynamic analysis and test coverage tool. It performs two key functions in the software engineering process: it helps you identify performance problems including bottlenecks, and it provides test coverage analysis in order to determine which program sections have and have not been executed by a given test suite.

- Performance bottlenecks can be highlighted, down to source line level if required.
- Analysis and reports on a variety of performance parameters including duration of execution (real time and CPU time), page faulting, system service counts, input/output statistics, Ada multi-tasking information, execution counts, and test coverage including 'Acceptable Non-Coverage'.
- Supports VAX Ada, VAX BASIC, VAX BLISS, VAX C, VAX COBOL, VAX DIBOL, VAX FORTRAN, VAX Macro, VAX PASCAL, VAX PL/I, VAX SCAN.
- Support for the DECwindows interface.
- Integration with VAX Language Sensitive Editor: when invoked, LSE will retrieve the required source file, position the cursor at the appropriate point and allow SCA and CMS access (standard LSE functions).
- Integration with DEC Test Manager: DTM can be used to manage the performance tests.

Graphical assistance for pinpointing performance improvement opportunities.

Gut feel often inaccurate

Use of PCA inside Digital has uncovered some surprises, particularly when debug code has been accidentally left in, and when system services or specific routines are called much more often than expected!

A programmer quickly gets the facts on which to invest his/her tuning time in the most productive way.

Fast problem identification

DEC PCA runs in two phases: the collector phase, in which it gathers the required information, and the analyser phase, in which it processes and presents the data. The collector phase has only minimal impact on the full data analysis of the whole application. A single collection enables several analyses to be carried out to highlight potential areas for improvement to the required level of detail, without the need to rerun the application.

All evidence presented symbolically

PCA uses the DEBUG Symbol Table (DST) built by the appropriate language compiler(s) to provide fully symbolic program information. Data can be filtered for highly focused analysis.

The analyser lets you quickly and definitively identify the cause of software problems. Hotspots are presented in a variety of chart and/or text forms.

The management of tests by DTM (DEC Test Manager) also means that parameters for testing may be modified easily and thus hidden non-linear algorithms can easily be identified.

Faster software without faster hardware

DEC PCA has improved customers' applications significantly — sometime to such a degree that the purchase of more CPU power has been postponed. A 5–15% performance gain is not unusual for applications that are considered to be well-written, and we have seen far more dramatic performance improvements:

Ada	5-10%
TPU	40-600% (a special case)
MMS	30-90%
DTM	10000% (specific module).

Although DEC PCA offers significant benefits in terms of application performance and quality (through the use of test coverage) when used in a stand-alone role, its benefits are multiplied enormously when it is used in conjunction with DTM and LSE.

Both PCA and DEC Test Manager are part of the DECset Software Engineering Tools Package.

DEC PCA Tuning Tool V4.0 3U SPD 27.07 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

CW B C D E F G H J K L M N Q S T U V

QL-119A9-J

USER BASED LICENCE	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS TK50 5 Tape M
PERS QL-119AA-2B	DOCS QA-965AA-GZ	MEDIA QA-965AA-H

Required Software: VMS V5.4 – V5.5.

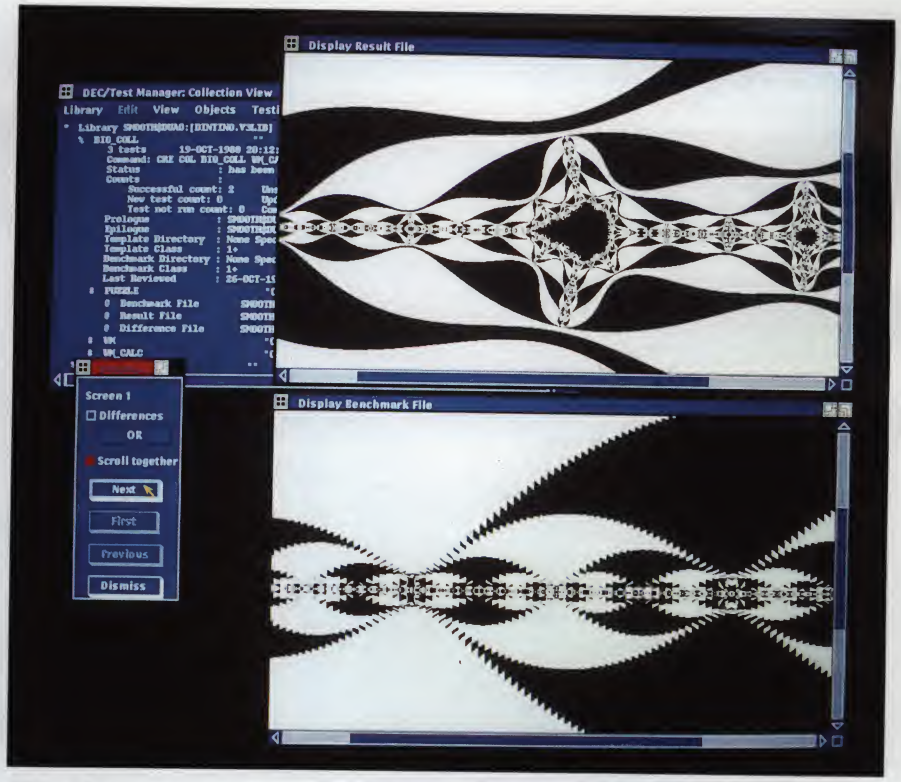
DEC Test Manager

TRIED AND TESTED

With the deadline pressures of the typical software development cycle, something's got to give — and all too often, it's the software testing phase. This phase is often near the end of the cycle and the time assigned to it tends to be 'squeezed'. Even where testing is done, subsequent development of the system can make the early tests meaningless.

With DTM, the DECset regression test manager, software and the tests for the software are developed in parallel. These tests are then run against the application and re-run as the application evolves. Any departures from the expected or benchmark behaviour are quickly highlighted for investigation.

- Effectively automates the practice of regression testing, enabling quality-assured software to be produced.
- Organises application test suites for the running and checking of project code, using librarian techniques.
- Encourages a 'relational' type of approach to testing organisation; links test descriptions to test groups.
- Supports a windowing interface: can be used to regression-test windows applications without manual intervention.
- Integrated with DEC PCA (and hence DEC LSE) and VAX DEC/CMS; regression tests can also be instigated from VAX DEC/MMS.
- Tests may be run unattended and/or out of hours.
- Several enhancements for testing DECwindows applications.



DEC Test Manager can perform automatic comparisons between different software versions, including screen presentations.

Who uses DTM?

One of the biggest users of DTM is Digital itself! We market over 270 software products for our VMS platform… new versions of the operating system, new versions of the layered products, new versions of compilers, forms and dictionary products, new hardware platforms.

Clearly, we have a significant testing workload which is designed to ensure that we can continue to deliver quality software to our customers. (The VAX Cobol compiler, for example, has a regression test suite of over 20,000 tests.) Such testing would be impracticable manually, and that's why the software engineering teams as well as our Software Quality Assurance organisation utilise DTM extensively in their QA activities.

Outside Digital, you'll find DTM at work in the major banks, aerospace companies, software houses and systems houses.

Our goal is to ensure that when delivery takes place of a new version of an operating system, or layered product, your applications will rebuild and execute correctly in the new environment. And of course, developers will wish to carry out comprehensive tests on their own software. All this usually takes several weeks of effort and perhaps some parallel running. That's where DTM can help.

> Digital's DEC Test Manager is one of the very few good software testing tools on the market.
>
> Tom Royer of Saunders Associates (a subsidiary of Lockheed Aircraft)

DEC Test Manager (DTM) V3.3 3U SPD 27.07 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

CW	B	C	D	E	F	G	H	J	K	L	M	N	Q	S	T	U	V
QL-927A9-J	C																

USER BASED LICENCE	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS
PERS QL-927AA-2B	DOCS QA-965AA-GZ	MEDIA QA-965AA-H

TK50 5 Tape M

Required Software: VMS V5.4 – V5.5.

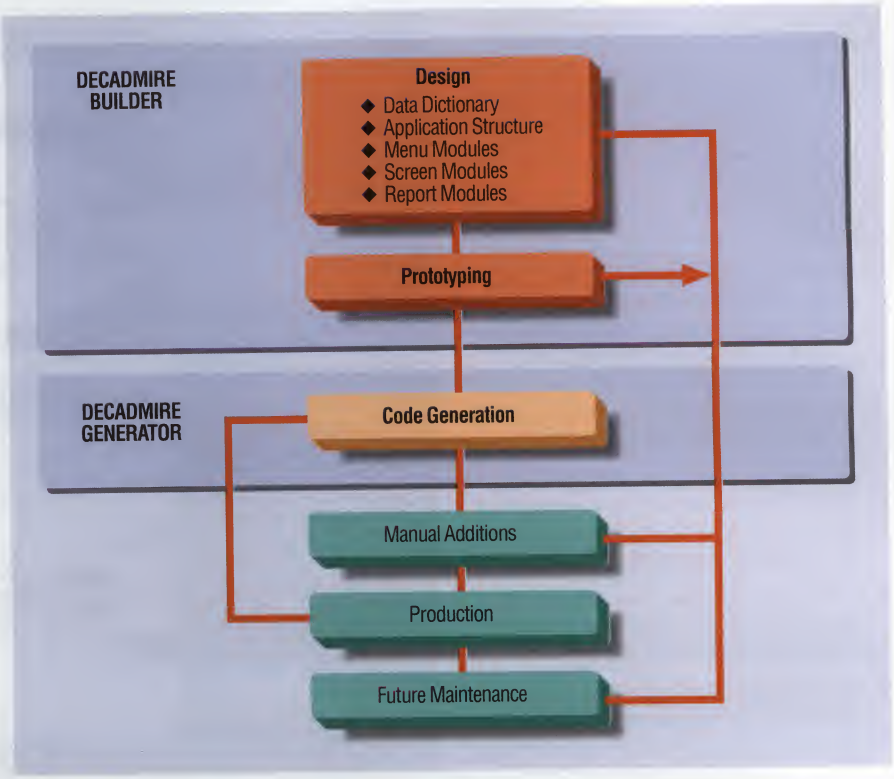
DECADMIRE

NEW PRODUCT

MAKING APPLICATION DEVELOPMENT REALLY EASY

DECADMIRE is a prototyping and application-code generating tool for developers on OpenVMS. High-quality code for ACMS or DECforms/3GL applications can be generated from the same design. Benefits include:

- Powerful prototyping facility allows applications to be tested before any code is generated. Developers can confirm with end users that the application meets their needs.
- Productivity improvements can be 50% or better in the coding and testing phase.
- Programmer productivity can be increased ten-fold for straightforward data maintenance routines.
- Application Development Control gives consistent look and feel to all generated applications and code, with built-in standards.
- Application design investment is protected; e.g., you can upgrade from a 3GL application to ACMS-based application using the same design.



Efficiency from design to code generation.

DECADMIRE is particularly useful in complex software environments where programmers are typically required to learn several software products to build a system. The quality of program code can be inconsistent owing to different levels of expertise within the team. In addition, development shops often stay with an existing environment, not because it is the best choice architecturally, but because it would take too much time and money to change. DECADMIRE can change that by giving a consistent approach which puts the developer above the level of coding.

DECADMIRE-BUILDER

With DECADMIRE, the developer is responsible for describing the database, application structure, appearance of screens, security and reports. The entire application can be tested during development prior to any code generation using the prototyping capability. This is part of the DECADMIRE-BUILDER module.

DECADMIRE-GENERATOR

The source code for the application is generated by the DECADMIRE-GENERATOR module. The result of this generation is tightly-linked standard Digital code: error-free COBOL, PASCAL, or FORTRAN, complete DECforms code, CDD dictionary building, SQL for database builds, and ACMS task and task group definitions. The generated code contains no linkages to DECADMIRE, and can be modified at will. In addition, a report generator and user documentation generator are included. Prerequisite software for use with DECADMIRE includes development software for the language being produced by the generator (e.g. a COBOL compiler).

Developer opportunities

DECADMIRE can be used by existing ACMS developers, or those planning to develop a TP (Transaction Processing) system in ACMS, to increase productivity.

DECADMIRE is a high-powered 4GL-like application development tool with which you can build 3GL applications in a fraction of the normal time. Unlike some 4GLs, you won't experience the performance 'bottlenecks' which have caused some companies to limit the use of 4GL languages.

DECADMIRE contains both the BUILDER and GENERATOR components, and there is no need for a DECADMIRE run-time licence. There are two families of products; one for developing with a 3GL, and one for developing with a 3GL and ACMS.

DECADMIRE COBOL V1.0	SPD 10.37
CONCURRENT USE LICENCE	
CONOLD — CONDIST — 14 DAYS	✓
LICENCE	QL-MY4AA-3B
MEDIA	QA-MY4AA-H5

Required Software: VMS V5.4 or later, Rdb V4.0 or later, DECforms V1.3 or later, CDD/Repository V4.1 or later, COBOL V4.3 or later.

DECADMIRE PASCAL V1.0	SPD 10.38
CONCURRENT USE LICENCE	
CONOLD — CONDIST — 14 DAYS	✓
LICENCE	QL-MY5AA-3B
MEDIA	QA-MY5AA-H5

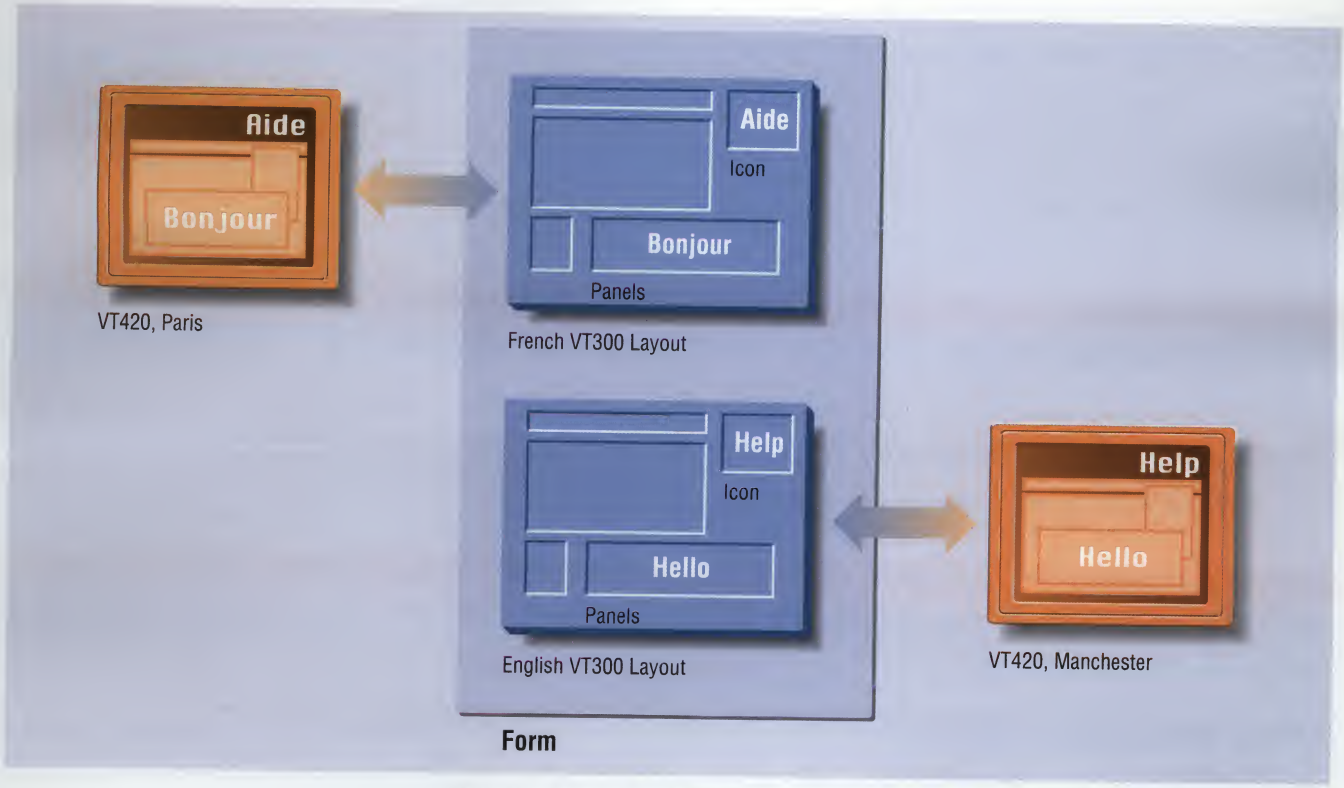
Required Software: VMS V5.4 or later, Rdb V4.0 or later, DECforms V1.3 or later, CDD/Repository V4.1 or later, PASCAL V3.8 or later.

DECADMIRE FORTRAN V1.0	SPD 10.39
CONCURRENT USE LICENCE	
CONOLD — CONDIST — 14 DAYS	✓
LICENCE	QL-MY6AA-3B
MEDIA	QA-MY6AA-H5

Required Software: VMS V5.4 or later, Rdb V4.0 or later, DECforms V1.3 or later, CDD/Repository V4.1 or later, FORTRAN V5.6 or later.

DECforms

THE NEXT GENERATION IN FORMS TECHNOLOGY



The unique DECforms architecture allows a single application to use a single form to multiple end-user environments.

DECforms now moves into another era with multi-platform support. This release introduces DECforms for ULTRIX/RISC in addition to a new version of DECforms for VMS. Based on the proposed ANSI- and ISO-standard Form Interface Management System, DECforms combines in a single product all the best features of VAX FMS and VAX TDMS.

- Uses its own built-in windowing environment to display and manage multiple, overlapping form panels, simultaneously, anywhere on the screen.
- Combines simple record-level program interface calls with powerful field-level processing capabilities isolated within the form.
- Enables efficient and powerful distributed forms processing in ACMS-based OLTP environments.
- Provides a robust, WYSIWYG form-development environment.

First with ANSI/ISO Standard FIMS.

DECforms is the industry's first implementation of the CODASYL Form Interface Management System (FIMS), a proposed national and international standard defined by an ANSI/ISO-accredited CODASYL committee. FIMS defines the model and supporting language for a standard interactive application form interface that offers device- and language-independence, efficient distribution, ease of use, and control flexibility.

The best of VAX FMS and VAX TDMS.

DECforms brings together all the key features of VAX FMS and VAX TDMS into a single, cohesive forms environment.

... plus a robust set of new capabilities.

DECforms offers a host of additional capabilities that make forms-based applications more powerful, more efficient, and easier to develop, maintain, and use.

- Allows a single form to be tailored for multiple environments; permits large forms of multiple pages.
- Provides in-the-form validations; scrolling regions of partial lines; supports icons, international dates and colour forms.
- New for this release; Run-time horizontal scrolling, improved VT420 handling and screen repaint for all terminals, improved multi session terminal handling.

Advanced window management.

With DECforms, panels are displayed on the screen in viewports (windows) which can be located anywhere on the screen. DECforms provides a complete windowing system to manage these viewports.

No more form processing

DECforms removes front-end processing from the application and isolates it in the form itself. It employs an Independent Form Description Language (IFDL) which features both declarational and procedural constructs. Field-level control, screen navigation, panel management, and cross-field and relational validations can be performed without returning to the application program. This latest version allows arithmetic in IFDL response steps.

The cost of developer training is minimised when using DECforms, as there is a common IFDL syntax between the VMS and ULTRIX platforms.

A foundation for the future

DECforms initially supports the full range of VT-series terminals and compatible emulators of PCs and DECwindows-based workstations. As new devices are introduced and supported, applications which use DECforms can take advantage of the new technologies with essentially no changes in application program code. Form designers need simply update existing forms to contain an additional layout tailored for a new device.

DECforms was designed with performance-sensitive On-Line Transaction Processing (OLTP) environments in mind. An integral interface to VAX ACMS allows DECforms

to serve as a powerful front-end for either distributed or centralised OLTP applications.

DECforms is available in two forms; a development kit which allows developers to write and run their forms interface, and a Run-time kit which allows already developed forms applications to run.

DECforms Development ULTRIX V1.4 SPD 29.90

LICENCE TYPE AVAILABLE				UPI GVR
CONC	PERS	TRAD	CW	OTHER
—	✓	✓	—	—

Required Software: ULTRIX/RISC V4.2 or later.

DECforms Development VMS V1.4 39 SPD 29.90 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

CW	B	C	D	E	F	G	H	J	K	L	M	N	Q	S	T	U	V
QL-VCHA9-J																	

USER BASED LICENCE	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
PERS QL-VCHAA-2B	DOCS QA-VCHAA-GZ	MEDIA QA-VCHAA-H

Required Software: VMS V5.0 or later.
Complementary Software: VAX ACMS V3.1 or later is required for distributed or centralised TP forms processing.

DECforms Runtime VMS V1.4 39 SPD 29.90 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

CW	B	C	D	E	F	G	H	J	K	L	M	N	Q	S	T	U	V
QL-VNSA9-J																	

USER BASED LICENCE	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
CONC QL-VNSAA-3B	DOCS QA-VNSAA-GZ N/A	MEDIA QA-VNSAA-H

Required Software: VMS V5.0 or later. DECforms Runtime is the product required if you use the ACMS CP Process as a front-end TP forms processor on another VAX.

PASCAL Compilers

NEW VERSION

VAX PASCAL

WELL-STRUCTURED SOLUTIONS

Digital's PASCAL compilers accept programs compatible with either level of the ISO specification for programming languages: PASCAL [ISO 7185-1983(E)] as well as ANSI/IEEE 770X3.97-1983 (December, 1983). PASCAL also meets the Federal Information Processing Standard Publication (FIPS-109) requirements by accepting programs conforming to the ANSI standard.

PASCAL for VMS and ULTRIX

- Marks all commands which go beyond the ISO and ANSI standards.
- Tests limits of fields, strings and domains during runtime; also checks for arithmetical overflows and branched jump instructions during runtime.
- Generates information for error tracing; creates a cross-references table.
- VAX PASCAL is supported by the DEC LSE language-sensitive editor and the VAX symbolic debugger.

VAX PASCAL is fully integrated into the VMS environment. It offers all methods of accessing VAX RMS files: sequential, relative and indexed-sequential. Procedures in all other VAX languages can be called by VAX PASCAL. Various options can be specified at compilation time.

VAX PASCAL V4.4 3U SPD 25.11 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

CW	B	C	D	E	F	G	H	J	K	L	M	N	Q	S	T	U	V
QL-126A9-J																	

USER BASED LICENCE	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
PERS QL-126AA-2B	DOCS QA-126AA-GZ	MEDIA QA-126AA-H

Required Software: VMS V5.2–V5.5.

PASCAL for ULTRIX/RISC V1.2 3U SPD 33.04 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

U/R	A	C	N	S	2	3	4	D
QL-VV4A -AA								

EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
DOCS QA-VV4AA-GZ	MEDIA QA-VV4AA-H

Required Software: ULTRIX/RISC V4.2–V4.2a.

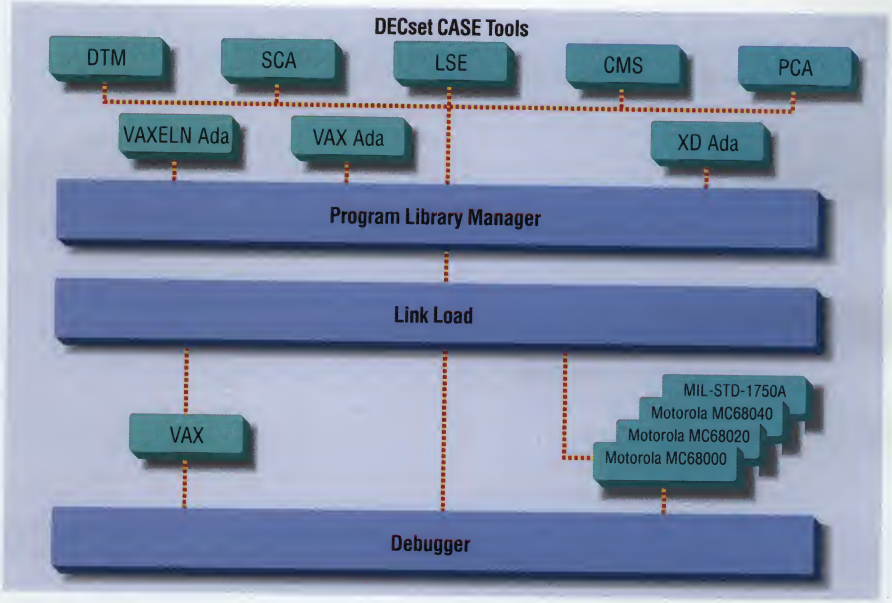
Ada for Native and Embedded systems

HIGH PERFORMANCE PLUS DEPENDABILITY

Digital has a number of integrated products implemented to the full ANSI/MIL-STD-1815A-1983 Ada Language standard. The VAX Ada compiler runs under the VMS operating system and generates optimised, shareable and position-independent code. The DEC Ada compiler is available for ULTRIX/RISC systems.

- Validated with the Ada Compiler Validation Capability (ACVC) V1.11 over the entire VMS and ULTRIX families.
- Comprehensive diagnostic messages, including automatic syntax error correction.
- High-level, fully symbolic debugging capability through the VMS debugger, including support for mixed Ada and non-Ada code, packages and tasking programs.
- Full development support using the optional DECset products.
- Generic Code Sharing to reduce code size and to encourage the development of efficient, reusable components.
- Many new Program Library Manager features, including the ability to determine compilation order without manual intervention.
- Can target VAX and Motorola M68000 family based embedded systems through the use, respectively, of VAXELN Ada or XD Ada products.

As a native-mode VMS language, VAX Ada is integrated into the VMS common language environment. All VMS system services and utilities are thus available to programs written in VAX Ada, including the VAX Record Management Services (RMS). VAX Ada programs can invoke modules written in other VMS languages, and programs written in other languages can invoke VAX Ada modules.



XD Ada Cross-Development System

XD Ada represents a joint effort between Digital's Ada compiler team and SD-Scicon, to produce a compilation system providing highly optimised, comprehensive support for the development of embedded systems. XD Ada supports the full ANSI/MIL-STD-1815A-1983 Ada language standard.

- Support for the Motorola M68000 family and MIL-STD-1750A architecture.
- Validated with ACVC Test Suite (V1.11)
- XD Ada has a host of features for real-time support:
  -Powerful Interrupt Handling
  -Time Slicing
  -Non-blocking I/O
  -Selective Linking
  -Fast Load and Debug
  -Partial Loading and Verification

The XD Ada system is tightly integrated with VAX Ada, the VMS Debugger and the DECset Tools. Together, this combination provides an outstanding environment for the developers of embedded real time systems.

The combination of proven VAX Ada technology with state of the art code generators, global optimisation techniques and high performance run time systems, results in code of outstanding quality — both fast and compact. All aspects of the XD Ada compiler and toolset have been designed for developing applications where execution speed and program size really matter.

The integrated environment based around XD Ada enables Ada developers to reduce risks, and deliver applications to time and within budget.

VAX Ada for VMS V3.0 — 3U — SPD 26.60 — CONOLD ✓ — CONDIST ✓ — 14 DAYS ✓

CW — B C D E F G H J K L M N Q S T U V

QL-056A9-J

USER BASED LICENCE	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
PERS QL-056AA-2B	DOCS QA-056AA-GZ	MEDIA QA-056AA-H

Required Software: VMS V5.4 or greater.

DEC Ada for ULTRIX/RISC V1.1 — 3U — SPD 21.41 — CONOLD ✓ — CONDIST ✓ — 14 DAYS ✓

U/R — A C N S 2 3 4 D

QL-GZQA -AA

EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
DOCS QA-GZQAA-GZ	MEDIA QA-GZQAA-H

Required Software: ULTRIX/RISC V4.0 or later.

DEC C++

NEW PRODUCT

DEC C++ for OpenVMS

A POWERFUL STEP BEYOND STANDARD C

DEC C++ addresses the total software development needs of the C++ programmer working on object-oriented development. The eagerly anticipated new product, DEC C++ for OpenVMS V1.1, is now released, and additionally DEC C++ for ULTRIX has progressed to V1.2.

- **As a native compiler, DEC C++ offers a significant advantage over other C++ pre-processor compilation systems.**
- **DEC C++ includes an optimising C++ compiler, C++ source-level debugger, and class libraries.**
- **DEC FUSE Support for DEC C++ for ULTRIX provides a powerful programming environment for DEC C++ and other languages.**
- **Initially available on ULTRIX/RISC platforms, and now VAX OpenVMS; future releases will support other platforms and operating systems.**

Standards

The DEC C++ compiler supports the full language definition as specified in The Annotated C++ Reference Manual (ARM) by Margaret Ellis and Bjarne Stroustrup (Addison-Wesley, reprinted May 1991, with corrections), excluding exception handling. This document is the base for the proposed ANSI standard and is compatible with the de facto industry standard from AT&T, cfront Version 2.1 and 3.0. Exception handling will be added to DEC C++ in a future version.

The DEC C++ Advantage

Other versions of C++ are available based on the 'cfront' translator which converts C++ to C. The C code is then run through an existing C compiler for final code generation. Translator cfront products are therefore 'layered' onto a C compiler, which can seriously affect performance and efficiency. DEC C++ is a true compiler — no layering or intermediate steps. This provides superior functionality, especially in debugging, tool integration, and performance.

Most vendors are currently offering support for 'cfront' V2.0 or V2.1, which is not compliant with the ARM. Version 2.1 also lacks template support, a key feature for the support of reusability. DEC C++ implements the latest version from AT&T, Version 3.0, including template support. Digital is first in offering a V3.0 native C++ compiler. In addition to supporting C++, the product set supports the ANSI C language definition and offers compatibility with common C.

For ULTRIX developers the DEC C++ debugger, DECladebug, was written in C++ and has been designed to support the C++ language. It is a source-level debugger that supports multiple inheritance, virtual base classes, virtual functions, and function name and operator overloading. The command line interface is 'dbx-like', and when used with DEC FUSE Support for DEC C++ option, a Motif-based graphical user interface is provided. OpenVMS developers benefit from DEC C++ enhancements to VAX debug.

DEC C++ provides a set of Standard Class Libraries. The DEC C++ product also provides these libraries (I/O Stream, Task, and Complex), as well as Vector and Generic. The class library binaries are included with the compiler. A separate source kit is also available for the Digital-developed class libraries: QB-MG5AA-E5 (ULTRIX), QB-MJ1AA-E5 (OpenVMS).

The DEC FUSE support for DEC C++ option ties DEC C++ for ULTRIX and FUSE together. This product includes class browsers, which allows users to peruse the relationship between classes, a graphical user interface to DECladebug, and an incremental linker. The incremental linker greatly improves 'Edit to Execute' time.

Performance

There are no industry-accepted benchmarks for the '++' part of C++. We believe that DEC C++ optimises these object-oriented parts of the language extremely well. For example, virtual function tables usually cause an extra level of indirection for function calls. DEC C++ optimises this extra indirection away whenever possible. There are other, similar optimisations that we can perform that are impractical with a pre-processor.

Benefits

- Full native C++ compiler — Greater performance and development efficiency and better integration with software development tools.
- Incremental Linker — Significant increase in link performance since only changed modules of code are re-linked.

DEC C++ for OpenVMS AXP V1.1 — 3U — SPD 37.39 — CONOLD — — CONDIST ✓ — 14 DAYS ✓

TR	R	Q	C	P	N	M	L	K	S	J	H	B	2	G	F	E	3	4	D	U	V	5
QL-MJ1A																						-AA

USER BASED LICENCE	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
CONC QL-MJ1AA-3B	DOCS QA-MJ1AA-GZ	MEDIA QA-MJ1AA-H

Required Software: OpenVMS V5.5.

DEC C++ for ULTRIX/RISC V1.2 — 3U — SPD 37.61 — CONOLD ✓ — CONDIST ✓ — 14 DAYS ✓

U/R	A	C	N	S	2	3	4	D
QL-MG5A								-AA

EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
DOCS QA-MG5AA-GZ	MEDIA QA-MG5AA-H

Required Software: ULTRIX V4.2, V4.2a, V4.3

DEC C Compilers

VAX C ON VMS SYSTEMS

VAX C is an extended implementation of the C programming language originally developed at Bell Laboratories. The VAX C compiler runs under the VMS Operating System and generates optimised, shareable and position-independent code. VAX C offers:

- Structured programming, with multiple data types for numeric, non-numeric and local system programming.
- Support for stream format and RMS-ISAM file formats.
- Access to data structures declared using the VAX Common Data Dictionary (VAX CDD/Plus), plus an inbuilt Rdb relational database precompiler.
- Compiler listing can optionally include a cross reference listing. VAX C also supports the VAX Language Sensitive Editor and VAX Source Code Analyser.
- Interface to VAX DEC/Shell as an alternate command line interpreter.
- Extensive global and local optimisations of generated code for increased performance and reduced size under VMS.
- Interface to the CURSES screen manipulation package.
- Can make use of standard VMS symbolic debugging, version management, performance analysis and automated testing tools.

As a native-mode VAX language, VAX C is integrated into the VAX common language environment. All VAX system services are thus available to programs written in VAX C.

VAX C supports VAX Record Management Services (RMS) in addition to the stream file access conventional among most C implementations. VAX C programs can invoke, as functions, modules written in other VAX languages.

VMS Development Environment support

VAX C supports the LINT-like features of the VAX Source Code Analyser which is used in conjunction with the VAX Language-Sensitive Editor. The combination of using function prototypes and the VAX Source Code Analyser allows the programmer to check for consistent function usage throughout a program environment.

```
/*
** This routine inserts a string at the position of the wildcard.
** If no wildcard exists, the insertion will not happen.
*/
static Boolean pts_WildInsert(char *noWildStr, char
*wildBaseStr, char *insertStr)
{
    while(*wildBaseStr && *wildBaseStr != '*')
      *noWildStr++ = *wildBaseStr++;
    if(*wildBaseStr == '*')
    {
      wildBaseStr++;/* skip over the wildcard */
      while(*insertStr)
       *noWildStr++ = *insertStr++;
      while(*noWildStr++ = *wildBaseStr++);
    }
}
Buffer TEST1.C                          Insert    Forward
LSE command compile/review
```

Compatibility with other implementations

VAX C represents a more current definition and implementation of the language than is described in the initial guiding document for C, The C Programming Language. Some incompatibilities among implementations do, however, exist. In general, many programs written in C for other compilers can be successfully recompiled under VAX C.

The C language has been closely associated with the UNIX Operating System which itself was largely written in C. Over 150 UNIX-specific routines have thus been included in the run-time library available with the VAX C compiler. Inherent architectural differences between UNIX and VMS necessarily preclude the likelihood of every C program written for a UNIX environment compiling and executing unaltered. Programs exploiting highly machine dependent or UNIX-specific features will require some conversion effort.

Runtime package for C applications

The VAX C Runtime Package is distributed with the VMS Operating System, and provides shareable routines to perform input/output, character and string handling, mathematical computations, memory allocations and emulation of selected UNIX features without the need for a separate runtime licence.

VAX C on VAX ULTRIX systems

When VAX C was first released, the most common request from our users was for a version of this excellent optimising compiler for UNIX systems. All implementations of ULTRIX ship with the normal UNIX portable C compiler, plus a licence for the DEC C compiler for ULTRIX which is compatible with VAX C.

DEC C for RISC

The DEC C compiler is ANSI compliant C, as well as having compatibility with older dialects of C via command line options. No extra licence is required, as this is included with ULTRIX.

* *Brian Kernighan and Dennis M. Ritchie, Prentice-Hall, 1978.*

DEC C for RISC V1.2 SPD 28.22

CONOLD ✓ CONDIST — 14 DAYS ✓

LICENCE	Included in ULTRIX	
MEDIA	**QA-YSJAA-H5**	(TK50)
or	**QA-YSJAA-HM**	(Tape)

Required Software: ULTRIX/RISC or UWS RISC V4.2 or later.

VAX C for OpenVMS V3.2 3U SPD 25.38 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

CW B C D E F G H J K L M N Q S T U V

QL-015A9-J

USER BASED LICENCE	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS (TK50 5 Tape M)
PERS **QL-015AA-2B**	DOCS **QA-015AA-GZ**	MEDIA **QA-015AA-H**

Required Software: VMS V5.2 or higher.

VAX COBOL

NEW VERSION

COMMERCIAL DATA PROCESSING LANGUAGE

VAX COBOL is a high-level language for business data processing that operates under the VMS Operating System, taking full advantage of the system facilities. It is based upon the 1985 ANSI COBOL Standard X3.23-1985 as modified by the X.23a -1989 amendment.

- Implements many of the features of forthcoming COBOL standards.
- Support for Data Manipulation Language (DML) pre-processors for accessing databases.
- Sequential, Relative and Random access support using VAX Record Management Services.
- Ability to call or be called from any other VMS programming language, maintaining your investment in tested code.
- Supported by the VAX Language Sensitive Editor.

Validated Implementation

VAX COBOL has been validated by the National Bureau of Standards for conformance to 'FIPS PUB 21-3, Federal Standard COBOL' at the high level.

Access to Databases

Two features provide access to the VAX Information Architecture from VAX COBOL. The Data Manipulation Language (DML) allows users to access VAX DBMS CODASYL and VAX Rdb/VMS Relational databases. The COPY FROM DICTIONARY statement, a Digital extension to COBOL, allows access to common record definitions stored in the CDD/Repository.

Digital extensions

- Screen handling is implemented using the DISPLAY and ACCEPT statements.
- File sharing and record locking features.
- Conditional compilation.

Development aids

The VAX COBOL compiler produces an object module from a source program. The compiler is capable of producing a source listing with embedded diagnostics indicating the line and position of a source-code error, a machine language listing, various name maps, subschema information and a cross-reference listing.

VAX COBOL V5.1 — 3U — SPD 25.04 — CONOLD ✓ — CONDIST ✓ — 14 DAYS ✓

CW	B	C	D	E	F	G	H	J	K	L	M	N	Q	S	T	U	V
QL-099A9-J																	

USER BASED LICENCE	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
PERS QL-099AA-2B	DOCS QA-099AA-GZ	MEDIA QA-099AA-H

Required Software: VMS - call for version details

Micro Focus COBOL/2

UNIX BASED COBOL COMPILER FOR ULTRIX/RISC SYSTEMS

Micro Focus COBOL/2 is a high-level language for business data processing that operates under the ULTRIX operating system. It allows applications to take advantage of the power of Digital's RISC processors. The development environment contains:

Product components

- COBOL/2 Compiler
- COBOL/2 Native Code Generator
- COBOL/2 Runtime Libraries
- FORMS-2

Utilities

- ANIMATOR
- Profiler

Micro Focus COBOL/2 Runtime Environment supports applications developed with Micro Focus COBOL/2.

Features

COBOL/2 is highly compliant with ANSI Standard COBOL X3.23 1985. It also implements the high level of the ANSI 1974 COBOL. COBOL/2 is X/OPEN Portability Guide Issue 3 (XPG3) compliant.

The COBOL/2 Compiler provides source code compatibility with IBM OS/VS COBOL, VS COBOL II, and COBOL/2 mainframe compilers.

The Native Code Generator produces object code for the instruction set of the target microprocessor.

The Runtime Library provides the operating system interface required by compiled and generated programs. It includes the capability to dynamically load and execute COBOL programs which have been compiled to either Micro Focus intermediate code or to native code object modules.

FORMS-2 is the Micro Focus Basic Screen Handling package that provides the ability to generate Micro Focus COBOL code for any Micro Focus Product. It is a powerful interactive tool designed to speed the creation of screen handling programs.

ANIMATOR is an interactive visual program analysis, debug and test facility which allows the programmer to observe and control a program's execution, statement by statement, at the source code level.

The Profiler is a Runtime utility designed to assist program developers in the optimisation of their COBOL applications. It provides statistics for the number of entries into and the amount of time spent in each paragraph. This allows programmers to analyse and improve the quality of their applications.

Micro Focus COBOL/2 V1.2 — 3U — SPD 33.27 — CONOLD — — CONDIST — — 14 DAYS ✓

U/R	A	C	N	S	2	3	4	D
QL-YNJA -AA	R							

EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
DOCS QA-YNJAA-GZ	MEDIA QA-YNJAA-H N/A

Required Software: ULTRIX Worksystem Software V4.1 – V4.2.

FORTRAN Compilers

THE INDUSTRY STANDARDS

NEW VERSION

DEC FORTRAN for OpenVMS

DEC FORTRAN for OpenVMS and DEC FORTRAN for ULTRIX/RISC are the benchmark industry-standard implementations of the FORTRAN language in their respective environments. Key features include:

- Validated against ANSI X3.9-1978, FIPS-69 Federal standard FORTRAN, ISO 1539-1980(E) FORTRAN, and MIL-STD 1753 standards.
- DEC FORTRAN for OpenVMS provides directed decomposition, allowing a single program to be split among processors in multi-CPU VAX configurations.
- DEC FORTRAN High Performance Option, to capitalise on the outstanding performance of the new VAX Vector Hardware, and to provide automatic decomposition of applications for Multiprocessor VAX systems.
- Local and global optimisation of object code to maximise performance.
- Provides symbol table information for each native environment: VMS symbolic debugger or ULTRIX dbx.
- Compiler switches to highlight code syntax unique to Digital FORTRAN extensions.

FORTRAN is the classic high-level programming language for technical and scientific applications. As well as offering industry standards compliance, all FORTRAN compilers have optional enhancements and extensions to give you more facilities when you need them.

DEC FORTRAN for both OpenVMS and ULTRIX can be used with the DECset development tools to give a supportive environment for the programmer. The use of the Language Sensitive Editor and the Source Code Analyser can deliver productivity gains to the trainee and expert developer alike.

DEC FORTRAN for OpenVMS programs can call modules written in other VAX programming languages.

VMS parallel-processing capability

Multi-processor VAX systems are required for proper execution of decomposed DO-LOOPs. However, applications that are compiled using the DEC FORTRAN parallel processing options will run on all VAX processors.

VAX High Performance Option

In order to use the new VAX Vector Hardware under OpenVMS, you need to purchase the DEC FORTRAN compiler plus the VAX FORTRAN High Performance Option (HPO). HPO supports the automatic vectorisation of applications, and the automatic decomposition of applications for use on multi-processor VAX systems (with or without vectors). Only one new language statement (ASSERT) has been added.

Use of DEC LSE is mandatory and DEC PCA is recommended with the VAX FORTRAN High Performance Option.

DEC FORTRAN for OpenVMS VAX V6.0 — 3U — SPD 25.16 — CONOLD ✓ — CONDIST ✓ — 14 DAYS ✓

CW — B C D E F G H J K L M N Q S T U V

QL-100A9-J

USER BASED LICENCE	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
PERS QL-100AA-2B	DOCS QA-100AA-GZ	MEDIA QA-100AA-H

Required Software: VMS –please call for version.

VAX FORTRAN HPO for VMS V1.3 — 3U — SPD 32.67 — CONOLD ✓ — CONDIST ✓ — 14 DAYS ✓

CW — B C D E F G H J K L M N Q S T U V

QL-YHBA9-J

USER BASED LICENCE	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
PERS QL-YHBAA-2B	DOCS QA-YHBAA-GZ	MEDIA QA-YHBAA-H

Required Software: VMS V5.4 or later, VAX FORTRAN V5.7.

DEC FORTRAN for ULTRIX/RISC V3.2 — 3U — SPD 33.05 — CONOLD ✓ — CONDIST — — 14 DAYS ✓

U/R — A C N S 2 3 4 D

QL-VV6A -AA

EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
DOCS QA-VV6AA-GZ	MEDIA QA-VV6AA-H

Required Software: ULTRIX/RISC V4.0 - V4.2a.

DEC PHIGS and DEC GKS

TRUE PORTABILITY FOR GRAPHICS APPLICATIONS

DEC PHIGS (Programmer's Hierarchical Interactive Graphics System) and DEC GKS (Graphical Kernel System) are Digital's graphics software products based on international standards. With the release of V5.0 of DEC GKS, the one product now contains both the two-dimensional (2D) and three-dimensional (3D) graphics capability.

- Application portability by adhering to industry standards.
- Device independence, making it possible to run graphics applications on a wide range of output devices without modifying the source code.
- Increased development efficiency, by reducing the cost of training. Programmers trained to use PHIGS or GKS don't need to be retrained when new or different graphics hardware is used.
- Network-transparent graphics, enabling your application to access the power and resources of other networked computers.

DEC PHIGS and GKS give device-independent graphics capabilities to your applications.

As an integral part of Digital's computing environment, DEC PHIGS and DEC GKS support other industry and Digital standards and architectures, including CDA (Compound Document Architecture) through the Digital Document Interchange Format (DDIF).

Implementing standards

DEC PHIGS is a 3-dimensional graphics subroutine library that controls the definition, modification, and display of hierarchical graphics data. DEC PHIGS is packaged as a set of shareable images, and is based on the 1988 PHIGS standard (ANSI X3.144-1988 and ISO 9592-1:1988(E)) for 3-dimensional, device-independent graphics.

DEC GKS is a subroutine library which implements the ISO (IS 7942) and ANSI (ANS X3.124- 1985) GKS standard for 2-dimensional device-independent graphics. DEC GKS conforms to level 2c of the GKS standard which provides full output capabilities, including workstation-independent segment storage (level 2), and full input capabilities (synchronous and asynchronous input (level C)).

The 3D component of DEC GKS is Digital's implementation of the ISO standard (ISO 8805:1988(e)).

PHIGS: 3D environment

PHIGS is a sophisticated, 3-dimensional graphics support system that controls the definition, modification, and display of hierarchical graphics data. DEC PHIGS incorporates the functionality of both PHIGS and PHIGS+.

DEC PHIGS offers a variety of primitives to create graphic elements. The appearance of these graphic elements is controlled by assigning attributes such as line weight, colour, or character font. The extended functionality in DEC PHIGS means application software does not need to generate complex graphics; this frees you to concentrate on developing your application.

GKS: Complete graphics functionality

DEC GKS offers the graphics application developer a rich set of graphics functions. It implements the GKS standard at level 2c (the highest level specified), making it the most powerful 2D graphics interface available to Digital's users today. DEC GKS accommodates the different input requirements for a wide range of devices so that your application program can receive input from all of them.

GKS is also a system for use by applications that need to produce three-dimensional images in a way which is either device-independent or system-independent, or both.

Both DEC GKS for ULTRIX and VMS are subroutine libraries packaged as linkable object libraries.

As an example of GKS's 3D capabilities, one application program can display an image of a cube in one window of a workstation and, at the same time, in another window (on another workstation if required), it can display a detail of the rear of the cube.

DEC PHIGS vs. DEC GKS

DEC GKS 3D is complementary to PHIGS. The two standards address different 3D graphics applications. GKS 3D is a system suitable for non-structured, fixed 3D images, while PHIGS handles structured 3D graphics data that can be edited and modelled.

Both DEC PHIGS and DEC GKS are available as full development kits or as runtime only for your target machines.

NEW VERSION

DEC GKS for RISC

DEC PHIGS for RISC RunTime V2.3c SPD 25.K7
CONCURRENT USE LICENCE
CONOLD ✓ CONDIST — 14 DAYS ✓

LICENCE	**QL-VW7AC-3B**	
MEDIA	**QA-VW7AA-H5**	(TK50)
or	**QA-VW7AA-HM**	(Tape)

Required Software: ULTRIX V4.3.

DEC PHIGS for RISC V2.3c SPD 25.K7
PERSONAL USE LICENCE
CONOLD ✓ CONDIST — 14 DAYS ✓

LICENCE	**QL-VW6AC-2B**	
MEDIA	**QA-VW6AA-H5**	(TK50)
or	**QA-VW6AA-HM**	(Tape)

Required Software: ULTRIX V4.3.

DEC GKS for RISC V5.0 SPD 30.89
PERSONAL USE LICENCE
CONOLD ✓ CONDIST ✓ 14 DAYS ✓

LICENCE	**QL-MLDAC-2B**	
MEDIA	**QA-MLDAA-H5**	(TK50)
or	**QA-MLDAA-HM**	(Tape)

Required Software: ULTRIX V4.3.

DEC PHIGS RunTime for VMS V2.3c SPD 29.38
CONCURRENT USE LICENCE
CONOLD ✓ CONDIST ✓ 14 DAYS ✓

LICENCE	**QL-VK1AA-3B**	
MEDIA	**QA-VK1AA-H5**	(TK50)
or	**QA-VK1AA-HM**	(Tape)

Required Software: VMS V5.5-2 and DECwindows Motif for Workstations.

DEC GKS for VMS V5.0 SPD 26.20
PERSONAL USE LICENCE
CONOLD ✓ CONDIST ✓ 14 DAYS ✓

LICENCE	**QL-810AA-2B**	
MEDIA	**QA-810AA-H5**	(TK50)
or	**QA-810AA-HM**	(Tape)

Required Software: VMS V5.5-2.

DEC PHIGS 3D for VMS V2.3c SPD 29.38
PERSONAL USE LICENCE
CONOLD ✓ CONDIST ✓ 14 DAYS ✓

LICENCE	**QL-0KBAA-2B**	
MEDIA	**QA-0KBAA-H5**	(TK50)
or	**QA-0KBAA-HM**	(Tape)

Required Software: VMS V5.5-2. and DECwindows Motif for Workstations.

DEC GKS RunTime for VMS V5.0 **3U** **SPD 26.20** **CONOLD ✓** **CONDIST ✓** **14 DAYS ✓**

CW	B	C	D	E	F	G	H	J	K	L	M	N	Q	S	T	U	V
QL-811A9-J																	

Required Software: VMS V5.5-2.

EXTRA DOCUMENTATION SETS		MEDIA AND DOCS	TK50 **5** Tape **M**
DOCS	**QA-811AA-GZ**	MEDIA	**QA-811AA-H**

VAX BASIC

FAST, FRIENDLY AND POWERFUL

VAX BASIC is a language which can be used both interactively and as a powerful development language for compiled systems; it is also fully integrated into the VMS development and database environments.

- Interpreter and compiler generating relocatable, position independent code that runs on any VMS system.
- Language elements for structured programming.
- Inbuilt graphics commands when used in conjunction with VAX GKS or VAX GKS Runtime.
- User-definable data types.
- Supported by the DEC LSE language-sensitive editor.

VAX BASIC can be used as an interpreter or as a compiler. In both cases it produces very fast programs. It is a much enhanced implementation of BASIC, providing a large number of mathematical and string-handling functions, with full support for the VAX RMS file system. Utilities such as VAX SORT, operating system services and even procedures written in other VAX languages can be called directly.

Block structure

Special support for structured programming elevates VAX BASIC almost to the ranks of a block-structured language (such as PASCAL) and allows a lucid programming style, even with complex tasks.

Graphics

VAX BASIC possesses graphics commands modelled after ANSI BASIC Graphics commands. These are implemented using VAX GKS to provide device-independence.

VAX BASIC V3.5 **3U** **SPD 25.36** **CONOLD ✓** **CONDIST ✓** **14 DAYS ✓**

CW	B	C	D	E	F	G	H	J	K	L	M	N	Q	S	T	U	V
QL-095A9-J																	

USER BASED LICENCE		EXTRA DOCUMENTATION SETS		MEDIA AND DOCS	TK50 **5** Tape **M**
PERS	**QL-095AA-2B**	DOCS	**QA-095AA-GZ**	MEDIA	**QA-095AA-H**

Required Software: VMS V5.0 – V5.5.

DEC RALLY

THE 4GL SOLUTION

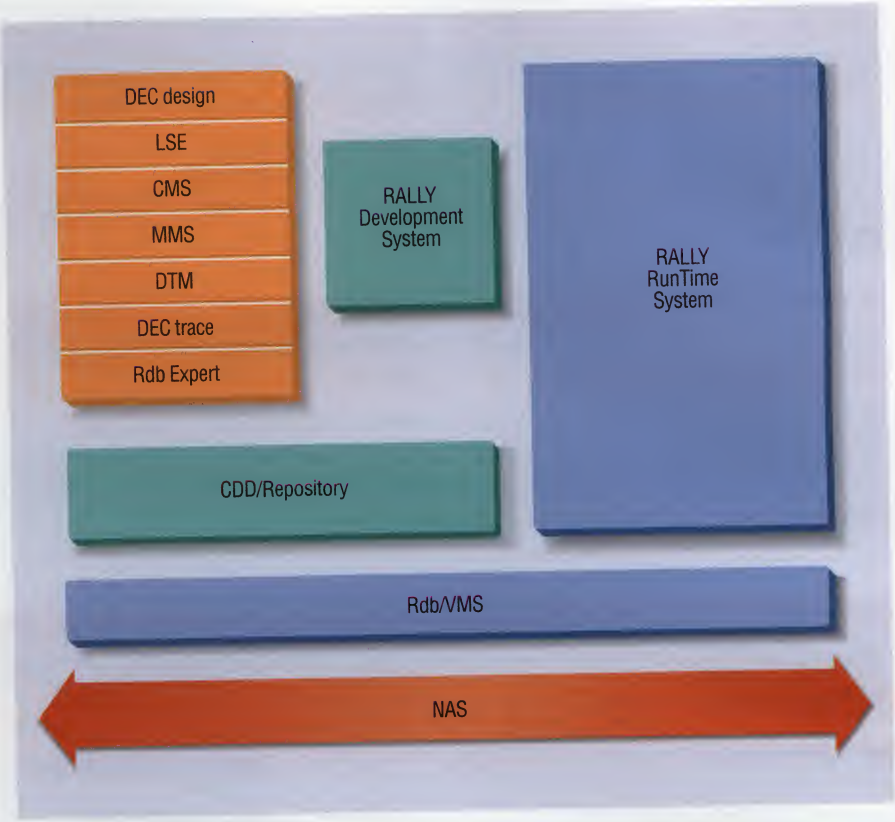
DEC RALLY is an integrated fourth-generation language environment. A companion product to VAX Rdb/VMS, it enables you to develop applications more quickly and cost-effectively.

- **Build simple to very complex VAX Rdb/VMS database and VAX RMS-based applications.**
- **Assemble prototype applications quickly.**
- **Create 'real' applications with multiple windows, 'strip' menus, complex menu flow control, and special function keys.**

DEC RALLY can be fully integrated with a wide range of Digital's development environment products, including:

- The ability to use VAX ACMS.
- Support for Rdb/VMS Two-Phase Commit.
- VAX LSE used to edit ADL procedures.
- Uses field attributes stored in the CDD/Repository.
- Support for DECtrace.

DEC RALLY provides a single, consistent set of flexible tools to define Rdb/VMS databases, forms, reports, menus, on-line help, and error messages. It consists of two systems: the Definition System — for creating, modifying, and testing RALLY applications — and the RunTime System, for executing RALLY applications. The RunTime System can be purchased separately.



DEC RALLY for MS-DOS

DEC RALLY for MS-DOS is currently a RunTime environment for MS-DOS which supports client/server access to Rdb/VMS data through the SQL Services Rdb/VMS option and PATHWORKS.

All the features available through the DEC RALLY for VMS RunTime Option are available through the DOS product, with the exception of: callable interface, open data interface, and external programming links.

DEC RALLY for MS-DOS supports two data access methods: Fix file, Rdb/VMS through SQL Services and PATHWORKS.

DEC RALLY for MS-DOS supports the execution of applications on a target machine which have developed on a host machine using the VAX RALLY for VMS Development Option. Application development is not currently supported by DEC RALLY for MS-DOS.

DEC RALLY for DOS V3.0	SPD 37.62
PERSONAL USE LICENCE	
CONOLD — CONDIST — 14 DAYS ✓	
LICENCE QL-MD8AF-2B	
MEDIA QA-MD8AA-H5 (TK50)	
or QA-MD8AA-HM (Tape)	

Required Software: PATHWORKS V4.0 or later, MS-DOS V3.3 or later. VMS Server requires VMS V5.3 or later, Rdb/VMS V4.0a or later, PATHWORKS for VMS V4.0 or later.

DEC RALLY V3.0	39	SPD 27.03	CONOLD ✓	CONDIST ✓	14 DAYS ✓
CW	B C D E F G H J K L M N Q S T U V				
QL-A86A9-J					

USER BASED LICENCE	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
PERS QL-A86AA-2B	DOCS QA-A86AA-GZ	MEDIA QA-A86AA-H

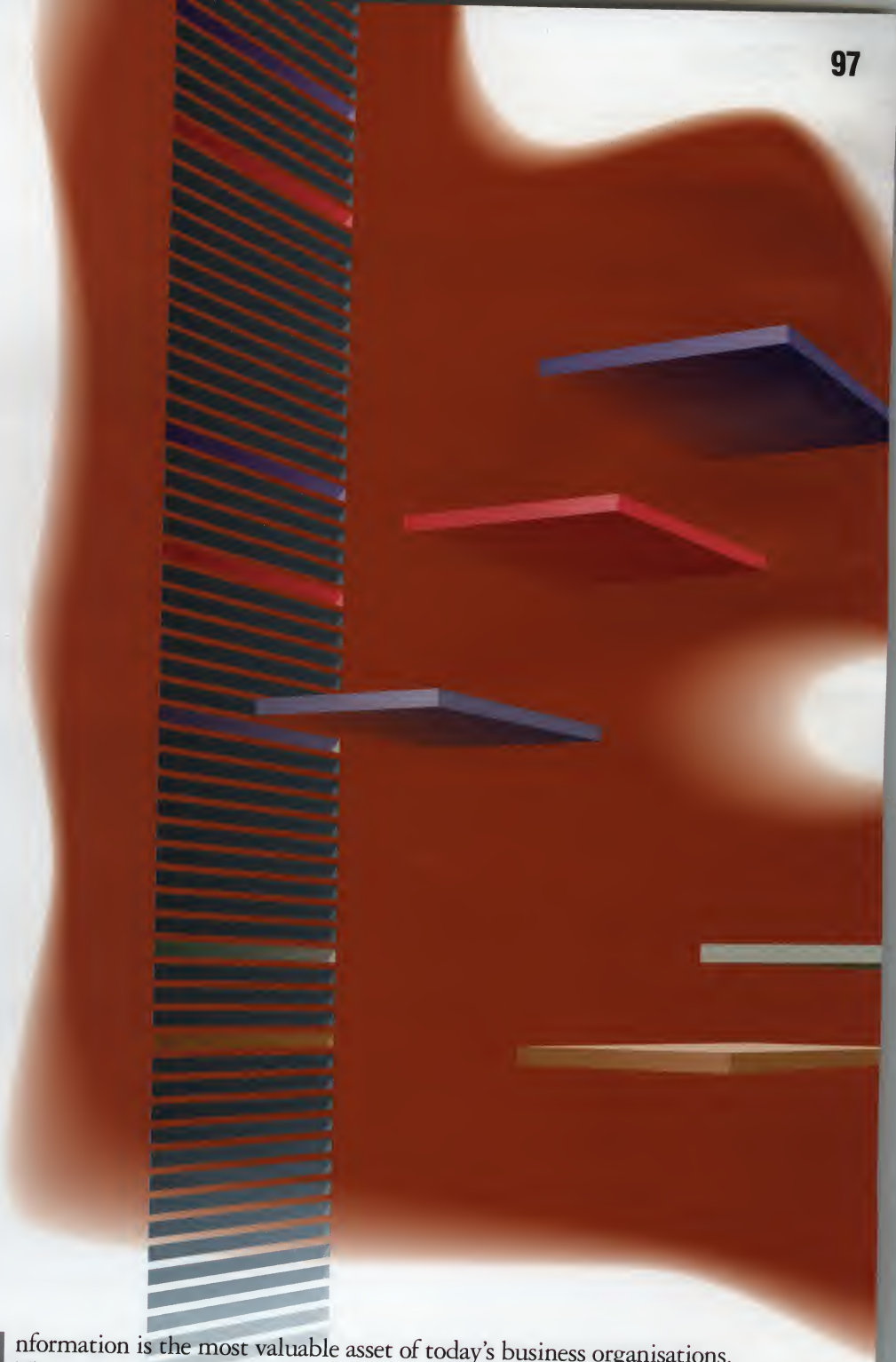
Required Software: VMS V5.2 or greater, VAX Rdb/VMS & VAX CDD/Repository for VMS (see SPD for exceptions).

DEC RALLY RunTime V3.0a	39	SPD 27.03	CONOLD ✓	CONDIST ✓	14 DAYS ✓
CW	B C D E F G H J K L M N Q S T U V				
QL-VF4A9-J					

Required Software: VMS V5.2 or greater, VAX Rdb/VMS and CDD/Repository for VMS (see SPD for exceptions).

EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
DOCS QA-VF4AA-GZ	MEDIA QA-VF4AA-H

Information management



Information is the most valuable asset of today's business organisations. The companies with the ability to capture, access, interpret, manage and distribute this key resource are those that will retain and expand their competitive advantage.

Digital's hardware and software products are the foundation of our strategy for enterprise-wide data management and transaction processing — and can make a direct contribution to your competitive edge.

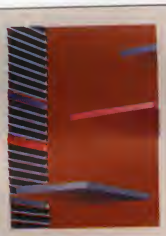
The backbone of our information-sharing capability is the OpenVMS operating system, which runs on every VAX computer, irrespective of size. Another key component is DECnet, which allows an organisation's computer resources to be linked in a variety of configurations, and provides access to information on remote computers.

Other Digital products let you access foreign database environments (such as DB2 on IBM mainframes) as if they were local databases on your own machine. Digital also offers industry-standard SQL/Services to enable direct information access from ULTRIX, MS-DOS, OS/2, Apple Macintosh and other applications. These are in addition to the SQL facilities built into our Rdb/VMS relational database. See overleaf for insights into Digital's range of powerful information management tools.

Help us to help you: Don't forget!
We need the name of a system manager and the CPU serial number whenever you order software.

INSIGHTS

Unlocking Corporate Data



Digital offers a powerful set of integrated products that enables companies to share data from numerous, mixed environments. Digital's interoperability products provide access to the database management systems and file systems of multiple vendors even if they are dispersed across a network. With transparent, direct access to the major data sources in an organisation, users are provided with a single, consistent interface.

SQL/Services for Rdb/VMS

The SQL/Services component of Rdb/VMS permits independent PC and desktop software applications to access Rdb/VMS databases via a standard Application Programmer Interface (API). This includes APIs for the Macintosh, OS/2, VMS, ULTRIX, and MS-DOS operating systems allowing applications on all five environments to be ported with minimal code changes. The latest version of SQL/Services, which is included in the current version of Rdb/VMS, also supports MS Windows, SUN workstations and TCP/IP.

SQL/Services works directly with the RdbAccess products to access VAX RMS, DB2, VSAM, and ORACLE data and, as it uses the ANSI/ISO standard SQL, application developers accustomed to SQL will find it easy to use.

DEC RdbAccess family

The DEC RdbAccess family integrates heterogeneous data environments, including ORACLE, VAX RMS, IBM VSAM and DB2, with Rdb/VMS. It provides direct, SQL-based access to non-relational files and foreign relational databases and can consolidate data definitions in CDD/Repository, Digital's active data dictionary.

DEC RdbAccess is an array of database servers and file server products that provide easy access to heterogeneous data from a single application. Whether you need to access non-relational data or foreign data directly, this family of products eliminates the need to write complex programs to incorporate different data sources into a single application.

The RdbAccess Family includes a comprehensive offering of database interoperability products: see the chart on this page.

Database Gateways

DEC RdbAccess VIDA for DB2	Provides an Rdb/VMS gateway, permitting direct read-only access to IBM DB2 databases.
DEC RdbAccess for ORACLE on VMS	Provides an Rdb/VMS gateway, permitting direct, read-only access to ORACLE databases on VMS.
DEC RdbAccess for VAX RMS on VMS	Provides SQL access to non-relational files through an Rdb/VMS gateway. Permits direct, read-only access to VAX RMS files and also access to VSAM data sets through DECnet/SNA Data Transfer Facility (DTF).

Access Tools

DECdecision	A windows-based decision support tool that allows users to create spreadsheets, graphics, and reports.
VAX TEAMDATA	A decision support tool that can be used by both experienced and inexperienced users to create spreadsheets for data analysis and business graphics for data display.
VAX RALLY	A 4GL programming tool that is used for applications development and information centre environments. RALLY provides a single, consistent set of flexible and easy-to-use tools to define the Rdb/VMS databases, forms, reports, menus, and built-in procedural language.
VAX DATATRIEVE	A VAX-based versatile query and report writing language.
VAX Data Distributor	An option to Rdb/VMS that automatically distributes subsets of relational data among multiple nodes.
DECquery	A PC, Macintosh and Workstation based database query tool.
DECreport	A report tool to use with DECquery for MS-Windows.

In addition, many third party tools and applications are available to provide access to your corporate data based on DEC RdbAccess.

DEC RdbAccess family of products

Native databases

RdbAccess products enable you to unlock data distributed around your company. Digital can also provide the native databases to store and manipulate your data, including VAX Rdb/VMS, the most popular VMS-based relational database.

Rdb is the relational database of choice for many developers when working on VMS or OpenVMS on both VAX and Alpha AXP platforms. Digital is committed to extending the availability of Rdb by porting it to Microsoft's Windows NT.

ULTRIX databases

ULTRIX no longer has a database bundled with it, which opens up your choice to specify the database which best suits your needs. We can supply the leading UNIX database, Informix, to address your ULTRIX information management needs.

DSM: Digital Standard MUMPS

MUMPS has a long and distinguished history since its origination as the Massachusetts General Hospital Utility MultiProgramming System. The last years have seen a resurgence of popularity for this product, where an interactive application requiring a large database is being developed. Digital has an acknowledged premier position in the MUMPS world with its ANSI standard DSM (Digital Standard MUMPS) for both the ULTRIX and VMS platforms.

DSM Digital Standard MUMPS

ANSI-STANDARD MUMPS FOR VMS AND RISC PLATFORMS

NEW VERSION

VAX DSM for VMS

DSM (Digital Standard MUMPS) is an implementation of the ANSI Standard Specification for MUMPS (X11.1-1990), and is available on both the ULTRIX/RISC and VMS Operating System. MUMPS (Massachusetts General Hospital Utility MultiProgramming System) is a high-level interpretive language and multiuser data management system. DSM is a superset of MUMPS with advanced capabilities in the areas of performance, productivity and portability built on the ANSI standard language. Key features of DSM include:

- Digital Standard MUMPS (DSM) — Digital quality, Open Software Standards, and high performance.
- Compatibility between VAX DSM, DSM for ULTRIX and DSM-11.
- DASL software tools.
- Before-Image and After-Image Journalling.

DSM is ideally suited for interactive applications that require a large shared database. This need is present in health care, where DSM has been used to develop applications such as patient registration and billing, medical record management and appointment scheduling. Although DSM was developed in a medical environment, it has also gained significant popularity in banking, inventory control, trust management and other areas of commerce and industry.

Development environment

Digital Standard MUMPS is a complete program development environment, providing a programming language, high-performance database, and RunTime environment.

The DSM language couples the flexible processing of variable length string data with a high-performance database system, making interactive database application systems easier to implement and maintain.

The DSM utility set includes the DSM Application Software Library (DASL) software. The DASL software is an application creation tool which combines a Data Dictionary, Screen (form) Compiler, Report Compiler, and an end user SQL-compliant Query Driver. DASL software uses code generation techniques to transform DASL commands and SQL statements into efficient MUMPS code.

Journalling

DSM supports both After-Image and Before-Image Journalling. With After-Image Journalling, records of all operations that modify the database are held on secondary storage. Following a database degradation, it is possible to restore the current database from full backup and the journal files using a dejournalling utility.

Before-Image Journalling in DSM software provides a journalling capability that records the physical image of a database block before modifications have been made. This facility preserves database integrity in the event of a CPU failure.

Upgrade from DSM-11

There are many thousands of PDP-11s running the DSM-11 operating system, and most are now candidates for replacement with more cost-effective systems. A DECsystem or VAX running DSM provides the ideal migration path because of price, compatibility, performance, and serviceability.

Digital is the only computer manufacturer that designs, develops, and integrates its own MUMPS software with operating system software and hardware. The advantage to you is simplicity; Digital is the single-source supplier for your DSM system. This is very important in the mission-critical applications where MUMPS is commonly used. In addition, Digital has had experience in MUMPS since 1971.

Distributed Data Processing

DDP (Distributed Data Processing) is high-performance DSM-specific network software that allows VAX, PDP-11, DECsystems and PCs to share DSM data using Ethernet local area communications. DDP is supplied with DSM on ULTRIX and VMS, and is available for selected PCs as DSM DDP-DOS, allowing the PC to act as a client to the main DSM system.

DSM DDP V1.0 — **SPD 50.19**

CONOLD — **CONDIST** — **14 DAYS** ✓

LICENCE	**QL-YG7AW-AA**
MEDIA	**QA-YG7AA-H7**
or	**QA-YG7AA-HB**
or	**QA-YG7AA-HI**

Required Software: Please call.

DSM for ULTRIX V1.0b — **SPD 33.76**

CONCURRENT USE LICENCE

CONOLD ✓ **CONDIST** ✓ **14 DAYS** ✓

LICENCE	**QL-GFFAC-3B**
MEDIA	**QA-GFFAA-H5**
or	**QA-GFFAA-HM**

Required Software: ULTRIX V4.2 or later.

DSM for ULTRIX V1.0b — **3U** **SPD 33.76** **CONOLD** ✓ **CONDIST** ✓ **14 DAYS** ✓

U/R **A** **C** **N** **S** **2** **3** **4** **D**

QL-GFFA -AA

EXTRA DOCUMENTATION SETS

DOCS **QA-GFFAA-GZ**

MEDIA AND DOCS — **TK50** **5** **Tape** **M**

MEDIA **QA-GFFAA-H**

Required Software: ULTRIX V4.2 or later.

VAX DSM for VMS V6.2 — **3U** **SPD 25.08** **CONOLD** ✓ **CONDIST** ✓ **14 DAYS** ✓

CW **B** **C** **D** **E** **F** **G** **H** **J** **K** **L** **M** **N** **Q** **S** **T** **U** **V**

QL-130A9-J

USER BASED LICENCE

CONC **QL-130AA-3B**

EXTRA DOCUMENTATION SETS

DOCS **QA-130AA-GZ**

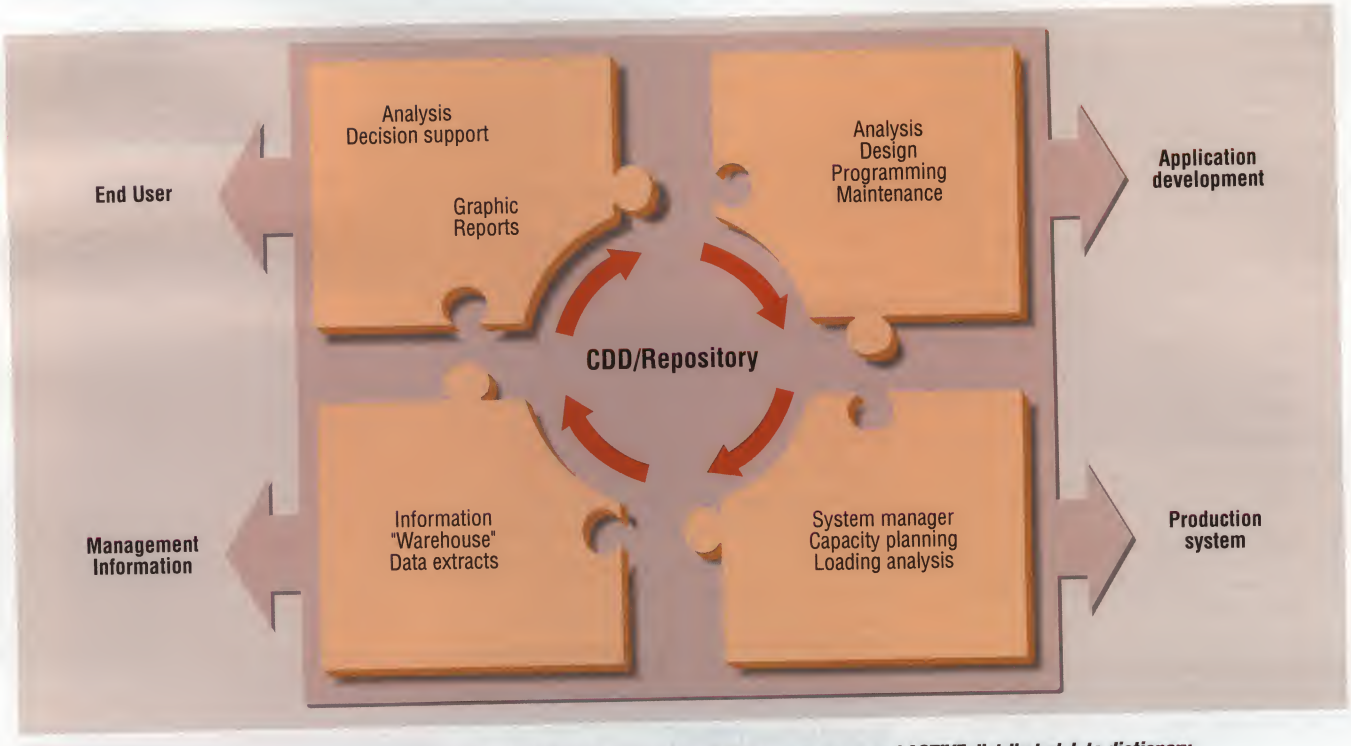
MEDIA AND DOCS — **TK50** **5** **Tape** **M**

MEDIA **QA-130AA-H**

Required Software: VMS V5.4 or later.

The CDD Family of Products

DISTRIBUTED, ACTIVE CASE AND DATA DEFINITION REPOSITORY



CDD/Repository is Digital's hierarchically structured ACTIVE distributed data dictionary.

The Common Data Dictionary/Repository (CDD/Repository) is an active, distributed repository system that provides the capabilities for users to organise, manage, control and integrate tools and applications across the whole enterprise. It is an evolution of the distributed, active CDD/Plus dictionary/repository. Using CDD/Repository, you can:

- Create data definitions to be shared by many VAX programming languages and information management systems across multiple applications and mixed-vendor environments.
- Store and access data definitions in multiple dictionaries anywhere on a network for both individual and universal use.
- Guard against redundant and inconsistent definitions, and protect the dictionary against unauthorised use and system failures.
- Improve control over application development, management of information and environment, and application resources.

Dictionary definitions

CDD/Repository is used to create, analyse and administer data definitions. These data definitions (called metadata) describe data, how that data is interrelated, and how it is used. The metadata in CDD/Repository track the name, description, location, type, format, size, change history, and usage of the actual data. CDD/Repository users can access dictionaries on different devices on a single node, on different nodes in a VAXcluster, and on nodes connected by a local or wide area network.

Field-level data descriptions

CDD/Repository dictionaries can create and access metadata in a unit as small as a field. Field definitions can be simple data structures or complex subscripted structures. You can easily combine these field definitions to form various record definitions and access them individually from supporting VMS products. Field-level data descriptions increase the level of data sharing possible.

Automatic relationship support

CDD/Repository automatically creates relationships when you connect two definitions in some way. For example, you can base the definition of a new field on an existing field definition. Similarly, you can relate a group of field definitions to a record definition by including the field names in the record definition. There is no need for you to specifically define these relationships because CDD/Repository automatically creates the connection.

Usage tracking

Because CDD/Repository is built on an entity-attribute-relationship model, it stores relationships between data definitions and components of applications. It provides powerful impact analysis and shows the effect of definition changes on applications. It becomes easier for you to maintain applications and to control change.

You can control changes to definitions in two ways: You can change the original definition to take effect immediately, or you can create a new version of the definition for users to incorporate over time. Warning messages alert users to the presence of a new version of a dictionary definition or to inconsistencies between the dictionary and external copies. The two methods of incorporating changes provide flexibility for you to address the different needs of developers and those running critical production systems, and to preserve data consistency at the same time.

Data security and integrity

CDD/Repository equips the data administrator with the tools to grant or deny specific access rights to dictionary definitions. Security provisions for definitions are consistent with established VMS protection schemes.

The integrity of CDD/Repository sessions is protected against system failures by automatic journalling.

Open architecture

CDD/Repository provides the means for a universal dictionary serving your needs across distributed, multi-vendor applications. Independent software vendors are able to layer their own products and applications directly onto CDD/Repository.

Environment management

CDD/Repository is the foundation for Digital's COHESION environment for developing applications, and is a component of the Network Application Support (NAS) strategy. Environment management features for developers include:

- Configuration Management: Control of multiple versions of system configurations.
- Context Management: Switch between project tasks while maintaining the current state of each activity.
- User-Designed Approval structures for release of system elements.
- Version Management.
- Pieces Tracking and Notification.

CDD/Administrator

The importance of easy repository access is increasing in lock step with the growing reliance on repositories as containers for information about a business, its data and its applications.

CDD/Administrator is a DECwindows Motif-based, fully customisable, graphical management tool for CDD/Repository. It allows people who manage or administer repositories to locate, query, manipulate, manage and report on objects stored in the CDD/Repository using a graphical interface.

You can 'navigate' through the contents of a CDD/Repository using a variety of graphical interfaces; for example, a hierarchical navigator which displays objects using indented lists, or a network navigator which displays objects in graphical form. The Repository administrator can also change editors as required... to display the appropriate information for various classes of users, or to match the characteristics of new or existing object types.

Reporting facilities are extensive. CDD/Administrator's ad-hoc reporting provides the flexibility to create reports to do any necessary analysis, while standard reports provide easy-to-use reporting for repetitive repository administrative tasks. The standard report files can be created from any VAX VMS platform, DECwindows-based or not. Customised reports can be created covering any objects stored in CDD/Repository, including any customer-made extensions. This provides cost-effective support for frequently used customer-specific reports, as well as support for less sophisticated users.

Keywords can be defined and associated with objects stored in CDD/Repository and used in locating, querying, and reporting in CDD/Administrator. Keywords created through CDD/Administrator can also be used by any application layered on top of CDD/Repository.

Repository administrators can extend CDD/Repository by adding new objects, protocols or methods to an individual repository, or to multiple repositories, using the same graphical interface used to manage existing objects in CDD/Repository.

A callable interface is also provided, helping developers to provide a consistent look and feel across all their applications.

CDD/Repository for VMS V5.1 — 39 — SPD 25.53 — CONOLD ✓ — CONDIST ✓ — 14 DAYS ✓

CW	B	C	D	E	F	G	H	J	K	L	M	N	Q	S	T	U	V
QL-897A9-J																	

USER BASED LICENCE	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
PERS QL-897AA-2B	DOCS QA-897AA-GZ	MEDIA QA-897AA-H

Required Software: VMS V5.4-3 or later, Rdb/VMS RunTime V4.0b or later. Optional extra Documentation is - Advanced Developers QA-897AC-GZ, DMU QA-897AB-GZ.

CDD/Administrator for VMS V1.1 — 30 — SPD 32.72 — CONOLD ✓ — CONDIST ✓ — 14 DAYS ✓

CW	B	C	D	E	F	G	H	J	K	L	M	N	Q	S	T	U	V
QL-YP8A9-J																	

USER BASED LICENCE	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
PERS QL-YP8AA-2B CONC QL-YP8AA-3B	DOCS QA-YP8AA-GZ	MEDIA QA-YP8AA-H

Required Software: VMS V5.4-3 or later, DECwindows Motif V1.0, CDD/Repository, VAX C V3.2, DECwindows Graphical Interface Tools.

DEC Rdb OpenVMS

THE INTERACTIVE PERFORMANCE LEADER

NEW VERSION

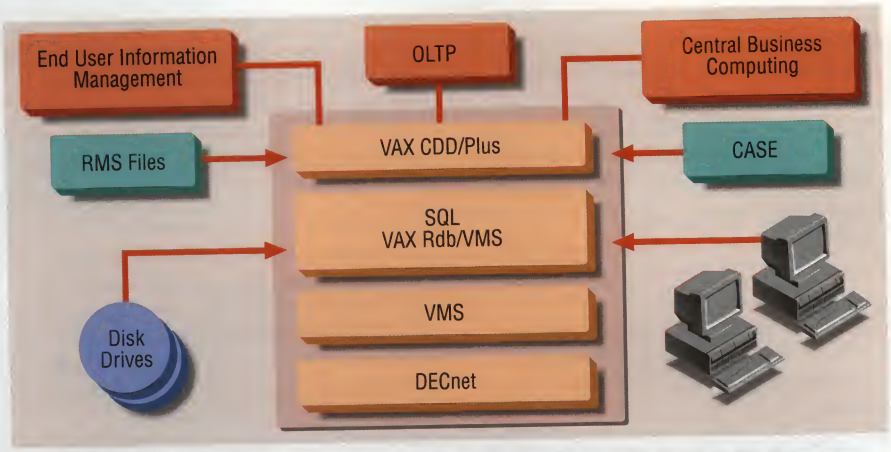
DEC Rdb for OpenVMS VAX

DEC Rdb OpenVMS is a relational database management system designed for general-purpose, multi-user and transaction processing applications.

- DECdtm support allows applications to update multiple databases across the network and guarantee full database integrity.
- NCSC C2 security features give commercial customers full American Department of Defence levels of security.
- SQL interface including Two Phase Commit transactions, support for the Segmented String datatype and SQL Module language support for CDD/Plus record definitions.
- SQL/Services support for MS-Windows, SunOS, OS/2 and MS-DOS clients. Supported via TCP/IP (except MS-Windows and OS/2), and DECnet (except SunOS).
- Direct Read/Write access from all processors in a VAXcluster, and from all CPUs in a VMS Shared Multi-Processor (SMP) system.
- Development options contains precompilers for many VAX languages.
- Includes an ANSI/ISO compliant SQL, which also supports Digital's VIDA with DB2 package, providing access to IBM/DB2 databases.

DECdtm Support

DEC Rdb OpenVMS has implemented full support for multi-database update transactions. Through the use of DECdtm, an integral part of VMS, applications can issue distributed transactions with minimum effort.



Rdb has all the features needed for mission-critical applications. These include the ability to recover from CPU failures in a VAXcluster without operator intervention.

Powerful capabilities

DEC Rdb OpenVMS takes full advantage of the VAXcluster environment by providing concurrent use, cluster-wide journalling and automatic recovery from node failure. DEC Rdb OpenVMS also supports the Digital Standard Relational Interface (DSRI), which provides for database access through DECdecision, TEAMDATA, VAX RALLY, VAX DATATRIEVE, and all DSRI-compliant VAX applications software.

Ordering options

DEC Rdb OpenVMS Development is available to develop applications for the DEC Rdb OpenVMS relational database. It contains all the full database maintenance, definition, administration and manipulation facilities. DEC Rdb OpenVMS Interactive Option supports the execution of previously developed applications, and provides the ability to perform database definition and queries using the interactive versions of SQL and RDO. The DEC Rdb OpenVMS RunTime Option is available to support the execution of previously developed applications on a target machine.

DEC Rdb OpenVMS Interactive V4.2 SPD 25.59

LICENCE TYPE AVAILABLE				UPI VCL
CONC	PERS	TRAD	CW	OTHER
—	✓	—	✓	—

VAX Rdb OpenVMS RunTime V4.2 30 SPD 25.59 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

TR	R	Q	C	P	N	M	L	K	S	J	H	B	2	G	F	E	3	4	D	U	V	5
QL-MA4A																						-AA

Required Software: VMS V5.3–V5.5. Note: the licence for the RunTime Option is included with the QL-001* VMS licence, and some NAS integrated products. It is not included with the QL-005* OpenVMS licence.

EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
DOCS QA-MA4AA-GZ	MEDIA QA-MA4AA-H

VAX Rdb/VMS Development V4.2 39 SPD 25.59 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

CW	B	C	D	E	F	G	H	J	K	L	M	N	Q	S	T	U	V
QL-VD2A9-J																	

USER BASED LICENCE	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
PERS QL-VD2AA-2B	DOCS QA-VD2AA-GZ	MEDIA QA-VD2AA-H

Required Software: VMS V5.3 - V5.5.

DEC RdbExpert and Graphical Schema Editor

EXPERT TOOLS FOR DATABASE DESIGN AND OPTIMISATION

DEC RdbExpert is a VMS-based product which generates high performance VAX Rdb/VMS databases. It also provides some significant features that increase the productivity of the database administrator. DEC RdbExpert benefits its users by:

- Generating a high-performance database physical design for a given logical design and transaction workload.
- Improving the productivity of personnel involved in database tuning and physical design.
- Generating the command procedures for creating, unloading and loading the database.
- Giving users insights into the design choices, thus allowing them to learn in the process.

Based on expert systems technology, DEC RdbExpert analyses:

- Database logical design
- Transaction workload information (from DECtrace) and priorities
- Data volume information
- System environment

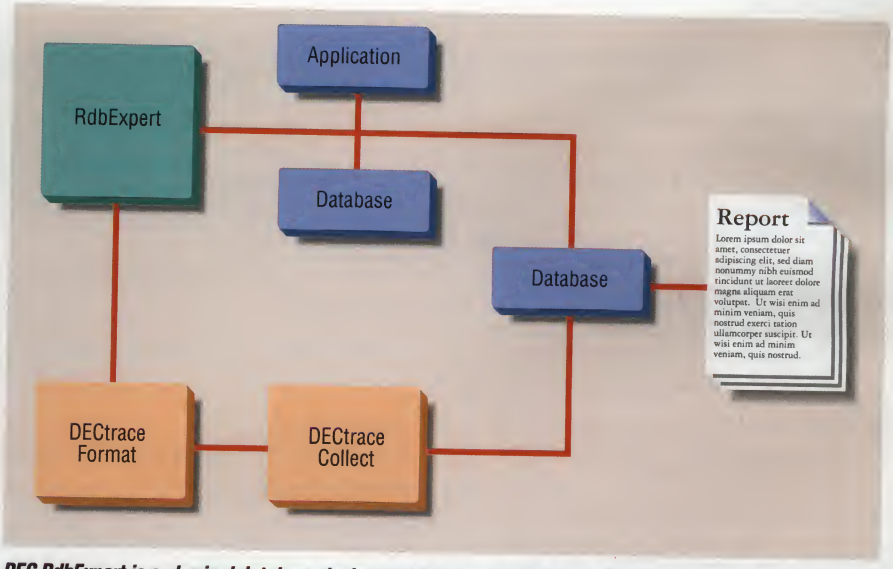
... and uses this information to provide:

- Executable database unload and load procedures (for VAX Rdb/VMS)
- Executable database creation procedure (VAX Rdb/VMS)
- RunTime parameters
- A design report, which documents the design and includes the reasoning leading to it

This new physical database design is tuned for its specific business needs. Using DEC RdbExpert, a database administrator can optimise the same logical database for each system on which it will reside, thus improving performance at each site.

Extensive knowledge

DEC RdbExpert contains extensive tuning rules based upon database experts' knowledge of physical database design principles and of database management system internals. This detailed knowledge includes that of the VAX Rdb/VMS query optimiser. Thanks to these rules, DEC RdbExpert greatly enhances the capabilities of less experienced data administrators.



DEC RdbExpert is a physical database design tool that assists Database Administrators (DBAs) and database designers in optimising VAX Rdb/VMS performance.

Choice of user interfaces

DEC RdbExpert provides a DECwindows Motif interface to take advantage of Motif's advanced user interface capabilities, as well as a command line interface.

Old and new

DEC RdbExpert can be used for optimising both new and existing databases. When optimising an existing database, DEC RdbExpert can make use of the actual transaction workload information provided by the DECtrace for VMS product. This greatly reduces the amount of time required to perform this otherwise tedious and critical step and increases the accuracy of the workload analysis.

Central use for remote targets

Since DEC RdbExpert can import complete database logical and physical schemas and DECtrace workload data over the network, the databases to be optimised can reside on processors other than the one used to run DEC RdbExpert.

DEC RdbExpert stores its design information in an VAX Rdb/VMS database and requires a minimum of the VAX Rdb/VMS RunTime/software to be installed on the same system. You must have access to the development version of VAX Rdb/VMS in order to execute the command procedures necessary to create/recreate the optimised database.

Graphical Schema Editor

The Graphical Schema Editor for Rdb/VMS is a new product which makes designing and editing Rdb/VMS schemas faster and easier than ever. Whether you're a database administrator, analyst or designer, the Graphical Schema Editor (GSE) can increase your productivity by letting you quickly create, edit and print logical and physical schemas.

GSE gives you the advantage by providing a more intuitive, user-friendly approach to the SQL DDL language — without compromising the power of SQL. You can graphically create, edit and modify all Rdb/VMS schema elements.

Since GSE stores the schemas in the same repository used by RdbExpert, the latter can use the GSE schemas as input into the physical database design process, and GSE can edit schemas generated by RdbExpert. Thus GSE and RdbExpert are closely integrated and complementary products.

DEC RdbExpert for VMS V2.0a 39 SPD 31.72 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

TR	R	Q	C	P	N	M	L	K	S	J	H	B	2	G	F	E	3	4	D	U	V	5
QL-VFJA																						-AA

USER BASED LICENCE	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS — TK50 5 Tape M
CONC QL-VFJAA-3B		
PERS QL-VFJAA-2B	DOCS QA-VFJAA-GZ	MEDIA QA-VFJAA-H

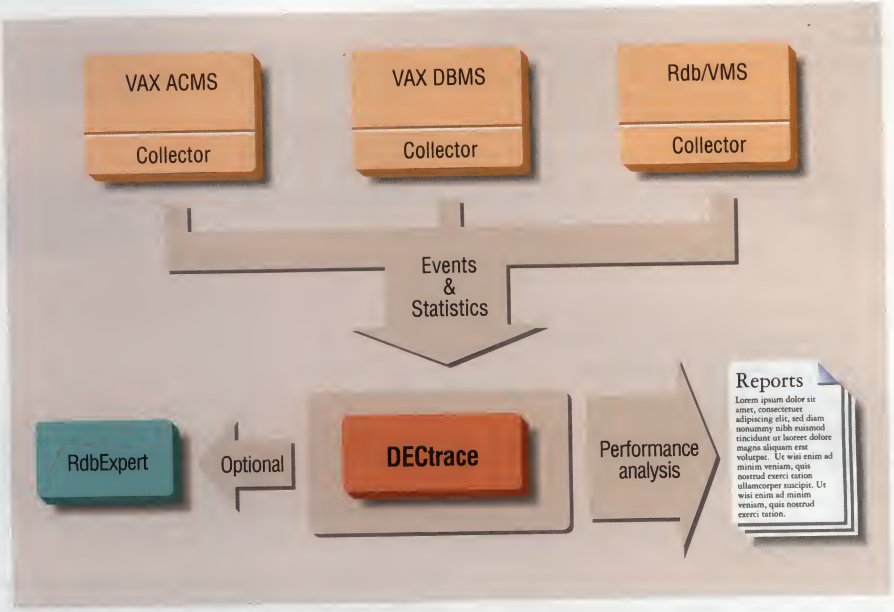
Required Software: VMS V5.2 or greater. VAX Rdb/VMS (RunTime) V4.0b - V4.1. See SPD for other Optional Software which depends on implementation.

DECtrace for VMS

EVENT TRACKING AND PERFORMANCE ANALYSIS

DECtrace for VMS provides the means of collecting and reporting event-based data and performance information from applications and databases.

- Tightly integrated with VAX Rdb/VMS, VAX DBMS and VAX ACMS to provide performance and event information for use in tuning databases and VAX ACMS applications.
- Data from DECtrace can be fed to RdbExpert for analysis of VAX Rdb/VMS databases.
- Supports DECintact and standard 3GL applications through a set of service routine calls.
- Provides detailed database transaction workload information for use by VAX RdbExpert when optimising physical database designs for VAX Rdb/VMS and VAX DBMS.
- Cost-efficient runtime option available. Record data on the target and analyse it on a fully licensed system.



DECtrace puts you in control of your database performance.

As DECtrace is designed to operate with minimal performance impact on the system, it can be used in both development and production environments. The data produced can be used for performance analysis, error logging and other areas where detailed event performance information is needed.

How it works

DECtrace is an event-based data collector rather than sample-based; it collects data at defined locations in the application code each time the code is executed and then produces a report. Interpreting the report is either the responsibility of the user, or the data can be analysed by RdbExpert (see RdbExpert details for further information).

A DECtrace event is defined to be an application-defined occurrence. It can have a start and end (duration event), or it can simply occur (point event). The events can have data items associated with them such as resource utilisation statistics (e.g. CPU time), or other application-defined items (e.g. text strings). Event data can even be tracked across product boundaries. So performance data about a VAX ACMS procedure call can be related to the VAX Rdb/VMS event that executes on behalf of that procedure call.

Two major components

DECtrace provides two major components. The first is a set of service routine calls for placement within the application software. The second is the DECtrace administration component. Through a command line interface, the user can register an application, select the criteria on which to collect data, and schedule a collection based on the events of interest. The data is later formatted into a VAX Rdb/VMS database for analysis. Reports can be generated from this data using the included DECtrace for VMS Reporter tool.

A separate product, DECtrace Collector, is required to be installed on each node from which events will be collected, but where no data formatting or reporting is required. The data can then be transferred to another node for the formatting and reporting to take place.

DECtrace for VMS V1.2 39 SPD 25.G1 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

CW B C D E F G H J K L M N Q S T U V

QL-VW2A9-J

Required Software: VMS V5.2 – V5.5-2. VAX Rdb/VMS V3.1b - V4.1 Runtime.

EXTRA DOCUMENTATION SETS
DOCS QA-VW2AA-GZ

MEDIA AND DOCS TK50 5 Tape M
MEDIA QA-VW2AA-H

DECtrace Collector for VMS V1.2 39 SPD 25.G1 CONOLD ✓ CONDIST — 14 DAYS ✓

CW B C D E F G H J K L M N Q S T U V

QL-YV4A9-J

Required Software: VMS V5.2 –V5.5-2. VAX Rdb/VMS V3.1b - V4.1 Runtime.

EXTRA DOCUMENTATION SETS
DOCS QA-YV4AA-GZ

MEDIA AND DOCS TK50 5 Tape M
MEDIA QA-YV4AA-H

DEC InstantSQL for Rdb OpenVMS

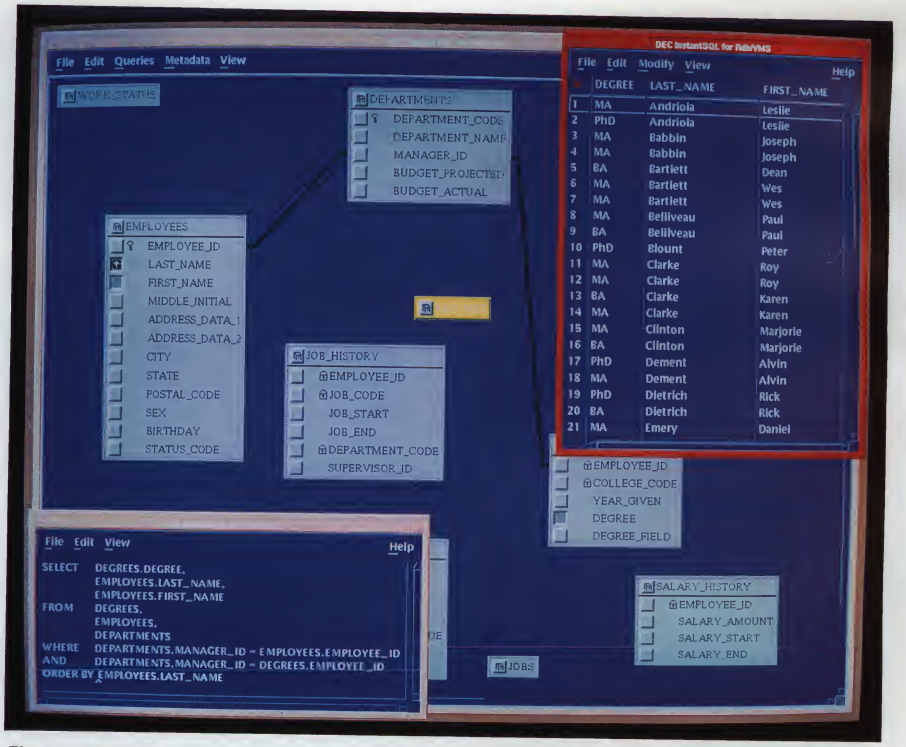
NEW VERSION

A GRAPHICAL USER INTERFACE TOOL FOR EASY DATA ACCESS

DEC Rdb OpenVMS database access and application program development has never been easier. DEC InstantSQL for Rdb OpenVMS is a DECwindows Motif Graphical User Interface (GUI) for DEC Rdb OpenVMS that enables users quickly to compose and test complicated database queries without hand-coding complex SQL statements. The benefits of DEC InstantSQL include:

- Manipulate data quickly without knowing SQL.
- Build queries graphically using pull-down menus and 'point- and-click' mouse controls.
- Supports read/write access to DEC Rdb OpenVMS databases.
- Generate editable SQL which can be 'cut and paste' into an application program.

InstantSQL presents a pictorial view of the DEC Rdb OpenVMS database, allowing simple access to database objects such as tables, columns, and views. By pointing and clicking, you can manipulate the data from the DECwindows interface. Data may be viewed in a spreadsheet-style window supporting horizontal and vertical scrolling, or saved in an ASCII text file. In addition, full on-line, context-sensitive help is available through Bookreader-based DECwindows Motif Help.



The graphical user interface offered by DEC InstantSQL enables users to manipulate data and build queries quickly and easily.

Simple data access

- Graphical query building — Simplifies application development with pull-down menus and point-and-click mouse controls.
- Automatic SQL statement generation and display — Speeds up application program development by enabling you to cut and paste the SQL syntax representing the query rather than memorising and typing complex SQL.
- Easy data access — Extends your ability to perform complex data queries even if you're a non-technical user, reducing the need for professional information management assistance.
- Spreadsheet-style display — Provides a query output window that supports horizontal and vertical scrolling, while allowing results to be saved in an ASCII text file.
- Screen navigation icon — Gives you an alternative to scroll bar screen navigation by changing the centre focus of the window.
- DECwindows Motif user interface — Provides a consistent interface with other Motif graphical applications.
- Full, online, context-sensitive help — Integrates the traditional user's guide, Getting Started manual, help files and tutorial into one unified information set, accessible through Bookreader-based DECwindows Motif.

Direct manipulation of complex data

Whether you're an Rdb OpenVMS programmer, administrator or end user, DEC InstantSQL can enhance your ability to manipulate and utilise valuable Rdb OpenVMS information. You can perform most database operations directly with the mouse, using a syntax that is natural and comfortable to use, and easy to understand.

InstantSQL's direct manipulation style of interface allows you to perform actions directly on columns and tables. For example, you choose columns by clicking on the column selection button. To join two columns, you draw a line between the two columns by dragging the cursor from one column to the next.

DEC InstantSQL for Rdb/VMS V1.1 3U SPD 37.60 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

TR R Q C P N M L K S J H B 2 G F E 3 4 D U V 5

QL-MEQA -AA

USER BASED LICENCE	EXTRA DOCUMENTATION SETS	MEDIA AND DOCS	TK50 5 Tape M
CONC QL-MEQAA-3B	DOCS QA-MEQAA-GZ	MEDIA QA-MEQAA-H	
PERS QL-MEQAA-2B			

Required Software: OpenVMS, VMS DECwindows Motif, and DEC Rdb OpenVMS. See SPD for version details.

DECquery

DATABASE ACCESS PRODUCTS FOR YOUR DESKTOP

Have you ever thought how useful it would be to get direct, read-only access to data on your minicomputer, mainframe or network — to include in your spreadsheet or local database application? Have you ever needed to cross-reference two databases to check that they are consistent? Are your desktop users hungry for timely, accurate, online business information? DECquery can satisfy such demands with fast, easy, flexible access to a wide variety of corporate databases — without programming, and without technical support.

- Gives Desktop users interactive, non-programming access to database information. Available for DOS, Macintosh, MS-Windows, OpenVMS and ULTRIX.
- Lets users generate their own database queries, reports, and data extractions for use in popular PC applications.
- Works with leading databases — including DEC Rdb OpenVMS, VSAM, ORACLE, VAX RMS, DB2.
- The MS-Windows client can now access dBASE, Microsoft and NetWare SQL databases as well as offer DDE 'Hot' links to automatically update your local application.

Streamlined data retrieval

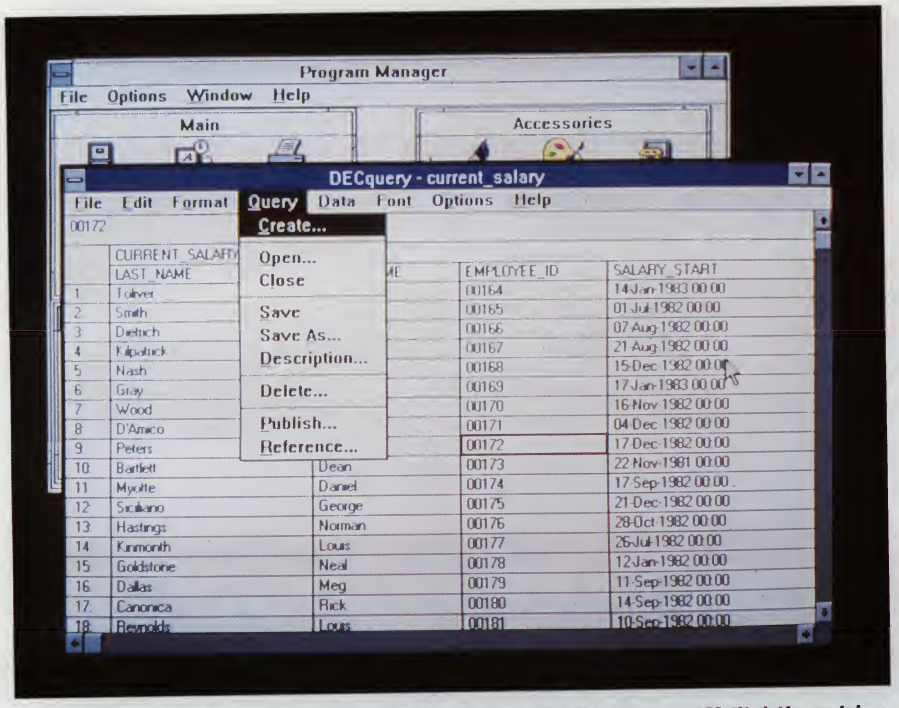
DECquery enables users of Desktop systems to browse through and extract information from leading corporate databases — including DEC Rdb OpenVMS, VAX RMS, VSAM, DB2, and ORACLE. DECquery uses the DEC Rdb OpenVMS database system as a gateway to corporate and external databases, providing transparent access to multiple databases on host systems. This dramatically expands information management capabilities at the desktop. With absolutely no knowledge of query languages, users can simultaneously open multiple databases and retrieve the information they need to create reports and perform analytical tasks.

Flexible data formatting

The easy-to-learn DECquery interface features menus, dialog boxes, and push-buttons that help PC and Macintosh users define their own queries, opening up fresh new ways of viewing stored information. They can sort data, group data records based on values contained in specified columns, calculate totals, subtotals, counts, averages, minima and maxima. Extracted data can be exported into spreadsheets, database managers, graphics packages, and other popular PC packages. Queries can be revised, re-used, and shared with others, saving lots of time on data-access operations performed on a regular basis.

Maximise IS resources

Because DECquery lets users access databases on their own, your IS backlog is reduced. So your organisation can make more efficient use of high-demand systems support resources.



Seamless integration: DECquery, now available on MS-Windows, DOS, Macintosh, and Motif platforms, brings data from your corporate databases to the desktop via a friendly, familiar window-based user interface.

DECquery for DOS V2.1	SPD 34.11
PERSONAL USE LICENCE	
CONOLD — CONDIST — 14 DAYS	✓
LICENCE	QL-GGBAF-2B
MEDIA	QA-GGBAA-HW
COMBINED	QB-GGBAA-SA

**Multimedia includes RX33 and RX23 diskettes.*

Required Software: DOS V3.3, V4.0, V5.0. PATHWORKS for DOS V3.0 or later. **Required Hardware:** PC with 640 KB minimum memory, including 475 KB free on starting application. 2.0 MB of free disk space.

DECquery for Mac V2.1	SPD 34.12
PERSONAL USE LICENCE	
CONOLD — CONDIST — 14 DAYS	✓
LICENCE	QL-GGCAH-2B
MEDIA	QA-GGCAA-HB
COMBINED	QB-GGCAA-SA

*Multimedia includes RX33 and RX23 diskettes.

Required Software: Operating System V6.0.4 or V7.0, PATHWORKS for Macintosh V1.0 or V1.1 (for System 7).

DECquery for MS-Windows V2.1	SPD 34.13
PERSONAL USE LICENCE	
CONOLD — CONDIST — 14 DAYS	✓
LICENCE	QL-GGDAG-2B
MEDIA	QA-GGDAA-HW
COMBINED	QB-GGDAA-SA

Required Software: MS-DOS V3.3, V4.0, V5.0. PATHWORKS for DOS V3.0 or later, MS-Windows. **Required Hardware:** PC with 800 KB minimum free memory. 2.3 MB of free disk space.

DECquery for VMS V1.6				SPD ??.??
LICENCE TYPE AVAILABLE				UPI MD1
CONC	PERS	TRAD	CW	OTHER
✓	✓	—	✓	—

DECreport

SIMPLIFIED REPORT WRITING FOR DECQUERY USERS

How do you format and present complex data on your PC for your Monthly Report — time after time? The answer for MS Windows users is DECreport personal report writer. DECreport allows end-users to interactively design complex report layouts and styles in a WYSIWYG (What-You-See-Is-What-You-Get) way.

- Gives end users the flexibility to quickly create customised reports which are easy to read.
- Easy to use: no need to learn any programming or 4GL tools.
- Used in conjunction with DECquery, reports can also be generated from remote server databases.
- Can also be used stand-alone with data from desktop tools such as Microsoft Excel and dBASE.

Choice of reporting styles

DECreport offers the user a variety of commonly used report styles through its modifiable templates. Report Styles include:

- Tabular (row and column-oriented) reports with features such as totals and sub-totals, cross-tabulation, page headers and built-in statistical calculations.
- Report Forms which can be custom-designed to include drawn objects such as lines, rectangles, and circles with free-form placement of text and database fields.
- Mailing labels and envelopes.

The full DECreport product allows you to tailor templates and generate reports.

Re-usable templates

Once you have defined a template, it can be saved for later use. Think of the time that can be saved by automatically compiling each monthly report with the latest figures, without laborious, bespoke extraction and formatting of data.

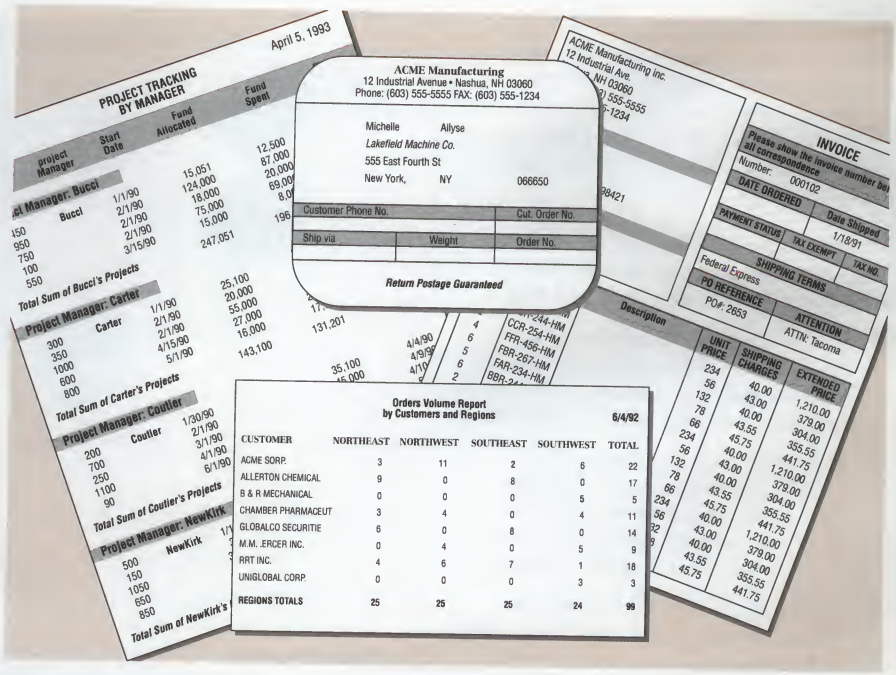
Also there are potential cost-savings. A saved template can be shared around your organisation, and all that is then needed to generate reports is the DECreport Run-Time Only option.

Choice of data

DECreport can access local files in common interchange formats, including:

- dBASE DBF
- Microsoft Excel BIFF

Particularly useful in larger organisations, DECreport offers close integration with DECquery. This opens up data from a variety of databases across the network for the user to pull into their report.



DECreport offers a comprehensive set of reporting styles.

Application integration

For advanced Windows users, there is the option of DECreport interacting with other tools and applications through the Microsoft Windows Dynamic Data Exchange (DDE) mechanism. Tools such as MS Visual Basic or Excel can use DDE to invoke DECreport and transparently request a report to be generated and printed.

DECreport for MS WindowsV1.0 SPD 37.83
CONOLD — CONDIST — 14 DAYS ✓

LICENCE	**QL-MENAW-AA**
MEDIA	**QA-MENAA-HW**
Combined	**QB-MENAA-SA**

Required Software: DOS V3.3, V4.0, V5.0. MS WINDOWS V3.0.
Required Hardware: PC with at least 2 MB of memory.
**Multimedia includes RX33 and RX23 diskettes.*

DECreport RT for MS Windows V1.0 SPD 37.83
CONOLD — CONDIST — 14 DAYS ✓

LICENCE	**QL-MEPAW-AA**
MEDIA	**QA-MEPAA-HW**
Combined	**QB-MEPAA-SA**

Required Software: DOS V3.3, V4.0, V5.0. MS WINDOWS V3.0.
Required Hardware: PC with at least 2 MB of memory.
**Multimedia includes RX33 and RX23 diskettes.*

DEC RdbAccess Products

NEW VERSION

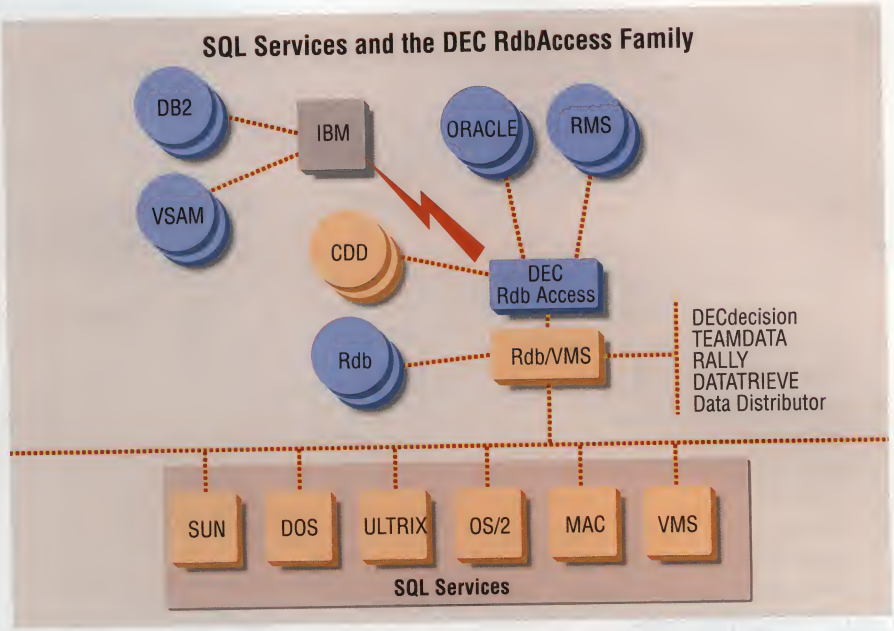
DEC RdbAccess for RMS

DIRECT ACCESS TO ORACLE DATABASES AND RMS FILES

DEC RdbAccess for ORACLE provides direct, transparent, read-only access to ORACLE databases residing on VMS systems from applications developed using products such as VAX RALLY, VAX DATATRIEVE, VAX TEAMDATA and DECdecision.

RdbAccess for ORACLE also supports:

- Access from the VAX Rdb/VMS interactive utilities, SQL and RDO.
- Access from pre-compiled 3GL applications with embedded SQL or RDML, and from desktop applications using SQL/Services.
- Extraction and replication of ORACLE sourced data, using the VAX Data Distributor, to an Rdb/VMS target anywhere on an enterprise-wide computer network.
- Direction of requests to a remote ORACLE database using ORACLE's SQL*Net.



Direct access to ORACLE

RdbAccess for ORACLE provides direct database access to VMS-based ORACLE tables and views. The user application accesses ORACLE data the same way it would access Rdb/VMS data; data retrieved from ORACLE can be displayed at a user's terminal, printed, or copied to another database or file using any standard Rdb/VMS compliant application.

ORACLE data can be accessed directly from pre-compiled 3GL programs using embedded SQL, SQL module language, dynamic SQL, callable RDO, or RDML.

ORACLE data can be accessed interactively using VAX Rdb/VMS, or directly through SQL/Services from desktop applications running on MS-DOS, OS/2, Macintosh, ULTRIX or VMS.

Distributed access

RdbAccess for ORACLE supports remote access to ORACLE data using either VAX Rdb/VMS remote data access capabilities or ORACLE remote data access capabilities. RdbAccess for ORACLE must be installed on the same node as an ORACLE DBMS instance. Applications on a remote node can access ORACLE provided that the remote node is running VAX Rdb/VMS.

RMS Access

DEC RdbAccess for RMS provides direct read and write access to VAX RMS files, and also read-only SQL access to IBM MVS data sets via DECnet/SNA Data Transfer Facility. Features include:

- CDD/Repository is used as the source of data definitions (metadata).
- Users can perform relational operations such as joins, selects, sorts, and projects. These operations can be done on multiple VAX RMS files, or on multiple IBM MVS data sets.
- VAX RMS indexed, sequential and relative files are supported.
- By means of VAX Rdb/VMS SQL/Services application programming interface (API), applications on VMS, ULTRIX, OS/2, Macintosh and MS-DOS can access VAX RMS files and IBM MVS data sets.
- VAX RMS files and IBM MVS data can be accessed directly from VAX-based programs .

RdbAccess products provide a facility that can trace communications activity, log errors, and help isolate problems.

DEC Rdb Access for Oracle on VMS V1.0 — 3U — SPD 32.80 — CONOLD ✓ — CONDIST ✓ — 14 DAYS ✓

CW	B	C	D	E	F	G	H	J	K	L	M	N	Q	S	T	U	V
QL-YQVA9-J																	

Required Software: VMS V5.2 or later, VAX Rdb/VMS V3.1 or later, DECnet-VAX and ORACLE DBMS V5 or V6. At least one Rdb/VMS development licence must be installed, although it doesn't need to reside on the same node as the ORACLE DBMS instance. VAX Rdb/VMS Development, Interactive or the RunTime option must be installed on the VAX from which the user initiates access. For further details see the System Support Addendum.

EXTRA DOCUMENTATION SETS		MEDIA AND DOCS	TK50 5 Tape M
DOCS	QA-YQVAA-GZ	MEDIA	QA-YQVAA-H

DEC RdbAccess for RMS V2.1 — 3U — SPD 32.88 — CONOLD ✓ — CONDIST ✓ — 14 DAYS ✓

CW	B	C	D	E	F	G	H	J	K	L	M	N	Q	S	T	U	V
QL-YQZA9-J																	

Required Software: VMS V5.3 – V5.5.2, CDD/Repository V4.3 – V5.1, VAX Rdb/VMS V4.0 – V4.1. To access VAX RMS or IBM MVS data sets from a remote node, VAX Rdb/VMS must be installed on the node from which the user initiates access. **Note:** Two Phase Commit requires VMS V5.4 or V5.5.

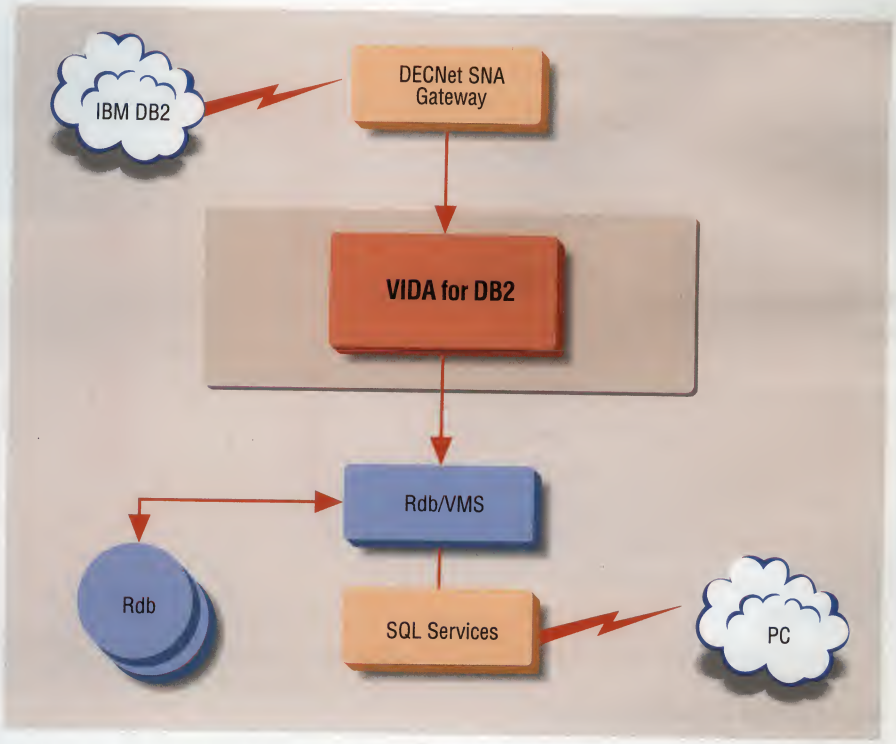
EXTRA DOCUMENTATION SETS		MEDIA AND DOCS	TK50 5 Tape M
DOCS	QA-YQZAA-GZ	MEDIA	QA-YQZAA-H

VIDA: RdbAccess to DB2

THE KEY TO UNLOCKING CORPORATE DATA

To remain strong and competitive, organisations must make electronically stored information available to all who need it. Digital VIDA products:

- Provide direct, read-only access to IBM-based DB2 databases on IBM MVS/XA or MVS/ESA.
- Enable VAX users and applications to transfer selected fields and records from IBM databases to VAX databases, files, applications, and devices.
- Support access from VAX Rdb/VMS utilities including SQL/services, giving access to DB2 database from your desktop PC.
- Enable tables to be uploaded from IBM to VAX using the VIDA Copy Facility.



VIDA unlocks the corporate data on your IBM for all to use.

VIDA in your organisation

VIDA provides VAX users and application programs with direct, transparent, read-only access to IBM databases via the DECnet/SNA interconnect products. There is no need to create a copy of the IBM database on a VAX system, although you can do it if you require a VAX-resident copy.

Data retrieved from the IBM mainframe database can be displayed locally or copied to VAX Rdb/VMS and VAX DBMS databases, or to VAX RMS files.

VIDA works with software tools already familiar to VAX users: DECdecision, VAX DATATRIEVE, VAX TEAMDATA, Rdb/VMS, as well as with application programs. VIDA also works with VAX Data Distributor to provide automatic, pre-scheduled database transfers from an IBM to a VAX system.

VIDA consists of a Server component which runs on the IBM system as a CICS transition, and a Client component on the VAX. The VIDA server accepts the SQL request from the VIDA client and submits it to DB2 using the dynamic SQL Interface.

Full security

VIDA preserves the security and access privileges of data on your IBM system; the administrator of the IBM system defines the limits of access via VIDA. Access can also be controlled using popular IBM security packages such as RAFC and ACF2.

On the VAX side, a VMS system manager can protect any or all VIDA access routines from any VMS user not permitted to read the IBM databases. And since VIDA lets the creator of access files omit protected values such as passwords from file storage, programmers writing data-retrieval programs can include procedures that prompt users to enter protected information at runtime.

Finally, some VMS user interfaces, such as VAX DATATRIEVE, work with databases through a pass name supplied by VAX Common Data Dictionary (VAX CDD/Repository). Since each CDD/Repository path name has an associated access control list, it supplies an additional level of security.

Imagine the possibilities

While VIDA can be used to distribute subsets of data, its real beauty lies in its ability to perform selective interactive transfers of records and files. In fact, VIDA is optimised to handle selective queries of an IBM database. VIDA can transfer a single record or larger extracts from the IBM database to your VAX system.

VIDA for DB2 Server V1.1	SPD 25.E7
CONOLD — CONDIST — 14 DAYS ✓	
LICENCE	QL-VTXAX-AA
MEDIA	QA-VTXAA-HA

Required Software: MVS/XA V2.2 or MVS/ESA V3.1 – V4.2 Operating Systems, CICS/MVS V2.1 or CICS/ESA V3.1 – V3.3, DB2 V2.0 – V2.2, CICS/MVS (or CICS/ESA) Attachment Facility, Assembler H V2.1, SMP/E V1.5 – V1.6.

VIDA for DB2 client V1.1	39	SPD 25.E7	CONOLD — CONDIST ✓	14 DAYS ✓
CW	B	C	D	E	F	G	H	J	K	L	M	N	Q	S	T	U	V
QL-VTWA9-J	C																

Required Software: VMS Operating System V5.4 – V5.5, VMS/SNA or DECnet/SNA Gateway, DECnet/SNA APPC/LU6.2 on VAX V2.2; **Complementary Software:** DECdecision, TEAMDATA, VAX DATATRIEVE, VAX Data Distributor, Rdb/VMS Development, Rdb/VMS Interactive, VAX ACMS and any other product that can access a DSRI compliant database.

EXTRA DOCUMENTATION SETS	MEDIA AND DOCS	TK50 5 Tape M
DOCS QA-VTWAA-GZ	MEDIA QA-VTWAA-H	

VAX Data Distributor

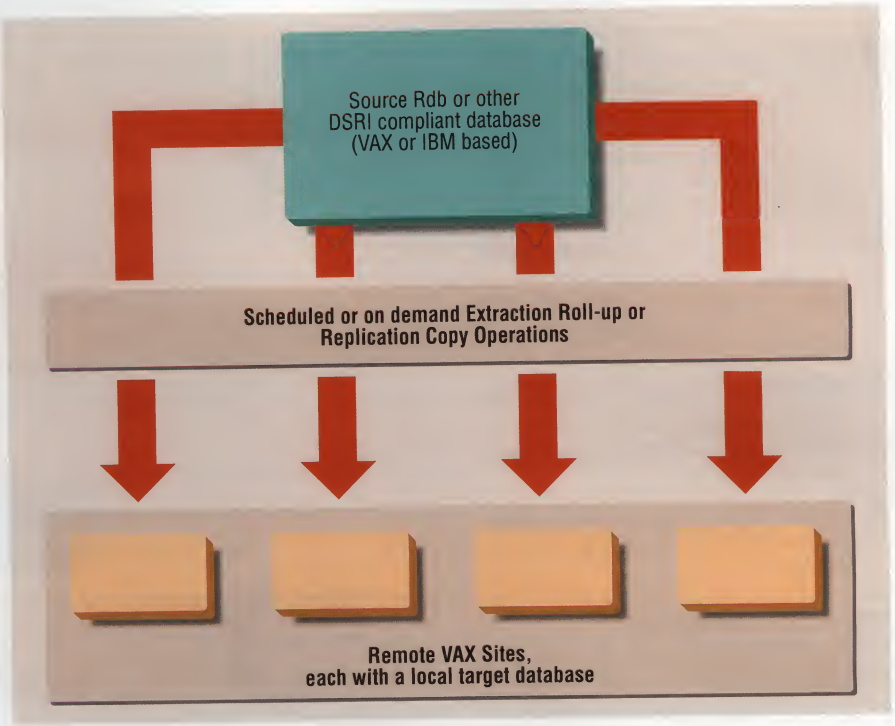
NEW VERSION

MOVING DATA TO WHERE YOU NEED IT

VAX Data Distributor is an automated data access tool that enables database administrators to transfer data subsets to other systems via DECnet. Running on any VMS system, VAX Data Distributor makes it possible for users anywhere in your enterprise to have local copies of the organisation's central databases.

VAX Data Distributor's automated, networked transfer of data provides benefits for systems managers and for users. By running applications on a copy rather than the central database, users obtain:

- Reduced query response time.
- Reduced contention for access.
- Minimal dependence on phone lines.
- Reduced network load.
- Fewer queries to any single database.
- An increase in the number of possible users.



Who uses VAX Data Distributor?

VAX Data Distributor is designed for use by database administrators with the appropriate data access privileges. Distribution can be set up in advance via the familiar Relational Database Operator (RDO) interface of VAX Rdb/VMS. Also VAX Data Distributor provides SQL support in transfer requests, in addition to the traditional RDO user interface. All parameters of the operation, including the data to be distributed, the type of copy to be made, the target machine, and the transfer and update schedules, can be specified with VAX Data Distributor commands.

To transfer databases between machines, VAX Data Distributor need only be installed on one machine. The other machine should have, as a minimum, a copy of VAX Rdb RunTime loaded.

With VAX Data Distributor, you can:

- Give a database administrator precise control of the distribution process, with the ability to specify what should be distributed and when it should be distributed. The same database can be the source for different transfers of different types.
- Distribute data from any VAX Rdb/VMS, VIDA (Digital's data access tool for IBM databases), or other database conforming to the Digital Standard Relational Interface (DSRI).
- Distribute the entire database or a specified subset of it, as well as the associated metadata. Each transfer can have its own schedule and be run with different frequencies.
- Create one copy or several, each containing a different subset of data and tailored to the needs of a specific group of users.
- Use command procedures written in Digital Command Language (DCL) to perform many pre- and post-transfer tasks.

Types of Transfer available

Extraction: a copy from a source database to a target Rdb/VMS database. Data is made local to users, where it can be read and updated without adding to the load on the central main database and its accessing processor.

Extraction Rollups: As Extraction, except that this type of transfer consolidates data from multiple source databases into one target Rdb database.

Replication: sends only the changes to the source database since the last transfer. This removes the need for the target database to be rebuilt whenever it needs to be brought up to date.

Access to DB2

IBM DB2 databases can be accessed through VIDA, with DB2 as the source database. Information entered into a DB2 database can be transferred into an Rdb/VMS database and used in an application on the VAX. Using an extraction rollup, data from IBM DB2 and Rdb/VMS databases can be combined.

VAX Data Distributor V2.4 39 SPD 27.76 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

CW B C D E F G H J K L M N Q S T U V

QL-VDRA9-J

Required Software: OpenVMS V5.3 -V5.5-2, and VAX Rdb/VMS V4.2 RunTime, Interactive or Development.

EXTRA DOCUMENTATION SETS

DOCS QA-VDRAA-GZ

MEDIA AND DOCS TK50 5 Tape M

MEDIA QA-VDRAA-H

SQL Access Server

STANDARDS-BASED SQL ACCESS TO RDB

SQL Access Server for Rdb/VMS is a NAS product from Digital that implements the specifications of the SQL Access Group. If you need SQL access from mixed vendor clients to Rdb/VMS databases, SQL Access Server is the standards-based product for you. It offers:

- Access to Rdb/VMS by non-Digital clients, without the need for proprietary gateways
- Separation of proprietary protocols from applications, for remote database access
- Open standards communication using OSI networking

The SQL Access Server from Digital is the first commercially available implementation of the SQL Access Group Phase 1 specification for "open" database environments. It is an ideal product for developers working on SQL Access Clients programming interfaces and applications.

Access to databases other than Rdb/VMS is also possible by using RdbAccess products for ORACLE and RMS files, or VIDA to IBM DB2.

SQL Access Server V4.1 30 SPD 40.89 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

TR R Q C P N M L K S J H B 2 G F E 3 4 D U V 5

QL-MPQA -AA

Required Software: VMS V5.4 or later, Rdb/VMS V4.0 or later of RunTime capability or better, DECnet-VAX extensions or DECnet/OSI (providing OSI networking).

EXTRA DOCUMENTATION SETS — DOCS **QA-MPQAA-GZ**

MEDIA AND DOCS — TK50 5 Tape M — MEDIA **QA-MPQAA-H**

VAX DBMS

CODASYL DATABASE MANAGEMENT SYSTEM

VAX DBMS is a general purpose, network-model database management system that complies with the specifications of the Conference on Data Systems Languages (CODASYL).

- CODASYL network database that uses the VAX CDD/Repository Common Data Dictionary to store data definitions centrally.
- Built-in data integrity facilities, including before- and after-image journalling, plus high-speed backup/restore.
- Database Query Utilities (DBQ), allowing the application developer to test program logic interactively.
- Can be used from any native mode VMS computer language.
- Includes support for DECdtm, a true two-phase commit protocol.
- New! Enhancements to the Restructuring Utility, giving the Database Administrator the ability to change database characteristics without the need to reload the database.
- Integrates with DECtrace and RdbExpert tools for optimum tuning based on day-to-day database use

VAX DBMS is intended to serve as a data management system for organisations in which:

- There is a large amount of data retrieval.
- There are many concurrent users.
- Data relationships are complex.
- Database implementations are long-term.
- A professional database designer/ administrator is available.

VAX DBMS V4.3 39 SPD 25.48 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

CW B C D E F G H J K L M N Q S T U V

QL-899A9-J

Required Software: VMS V5.3 or greater CDD/Plus V4.3 or CDD/Repository for VMS V5.0.

EXTRA DOCUMENTATION SETS — DOCS **QA-899AA-GZ**

MEDIA AND DOCS — TK50 5 Tape M — MEDIA **QA-899AA-H**

VAX DBMS RunTime V4.3 39 SPD 25.48 CONOLD ✓ CONDIST ✓ 14 DAYS ✓

CW B C D E F G H J K L M N Q S T U V

QL-915A9-J

Required Software: VMS V5.3 or greater CDD/Plus V4.3 or CDD/Repository for VMS V5.0.

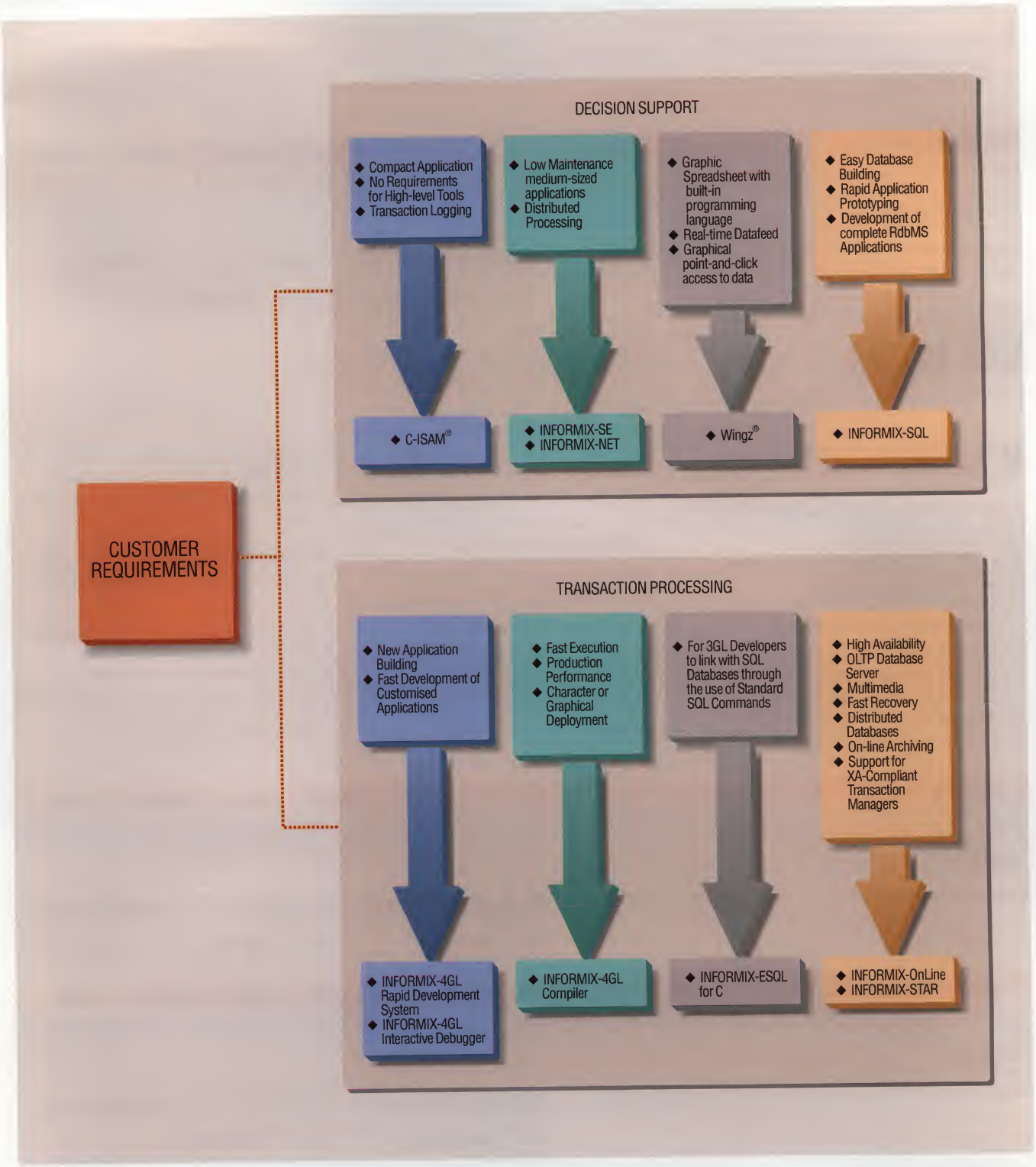
EXTRA DOCUMENTATION SETS — DOCS **QA-915AA-GZ**

MEDIA AND DOCS — TK50 5 Tape M — MEDIA **QA-915AA-H**

INFORMIX on ULTRIX

LEADING DECISION-SUPPORT AND TP CAPABILITIES

INFORMIX have a range of products to run on Digital's ULTRIX based systems, which can now be supplied by Digital as part of your business solution. These cover Database technology and the building blocks for Transaction Processing systems. The diagrams below give an overview of the capabilities. For more information please contact your local Digital office.



DEC Object/DB

NEW PRODUCT

HIGH-PERFORMANCE OBJECT-ORIENTED DATABASE

Object-oriented technology provides developers with a radically different approach to creating software — snapping together chunks of existing software code to form new applications. DEC Object/DB software takes this approach a step further, creating a high-performance, object-oriented database that combines database technology with object-oriented concepts to provide unique capabilities for data modelling and runtime support.

- Provides client/server model for full and transparent distribution of data and control.
- Gives developers flexibility to define, create, delete and modify complex data structures.
- Provides database programming interfaces for C++ and C.

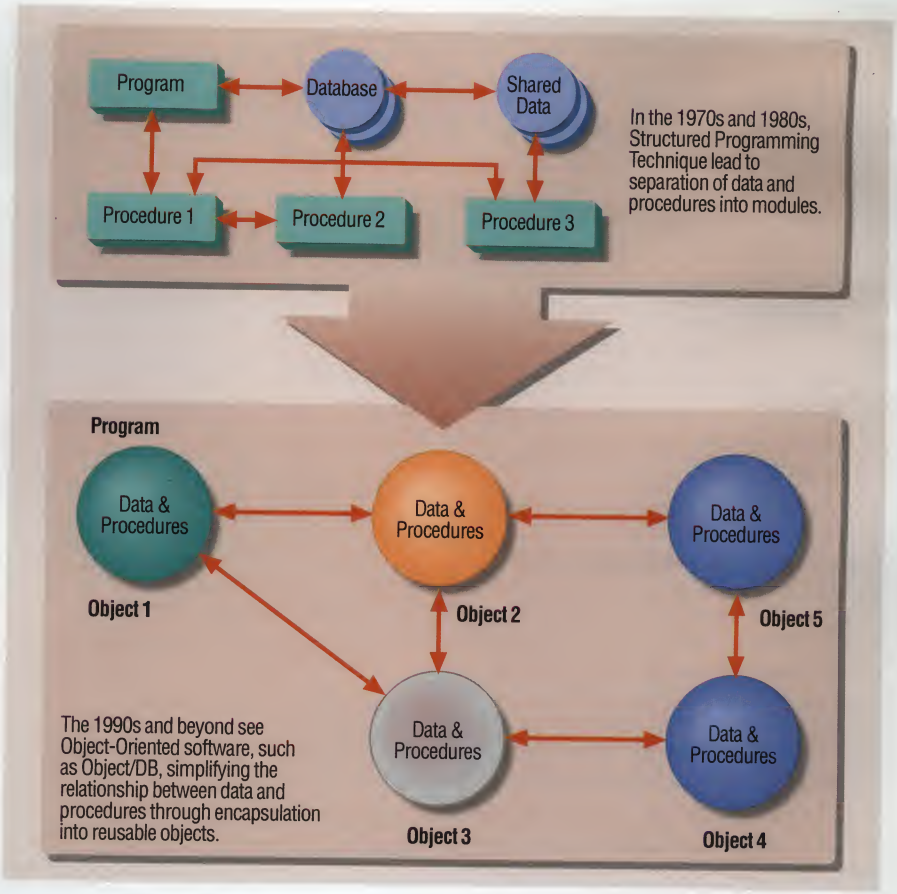
DEC Object/DB will help increase the reliability of your applications and make them easier to modify. It's particularly well suited for engineering, scientific and manufacturing applications.

Flexible data modelling capabilities

DEC Object/DB provides various programming language interfaces, database tools, multi-user support, and a distributed database architecture. It provides true heterogeneous support through transparent, on-demand data format translations among different architectures.

It offers database programming interfaces for C++ and C, and ensures data modelling through object-oriented features such as encapsulation and inheritance. DEC Object/DB gives you the ability to define, create, delete and modify data structures of any complexity.

By allowing you to specify the appropriate granularity for each database operation, DEC Object/DB lets you make the functionality/performance trade-offs necessary for your particular application. This control can be in terms of the amount of data or the period of time for a given operation, including locking, versioning, recovery, deletion and creation.



A full range of development and programming tools are available with DEC Object/DB. They include a browser and a read/write debugger, plus tools to help you define data through a data definition language (DDL) and access data through a data manipulation language (DML).

Client/server model

The DEC Object/DB client/server model provides full and transparent distribution of data and control. This means it can support engineering teams working at different locations, using different operating system workstations with a variety of applications.

DEC Object/DB Full Development V1.0

PERSONAL USE LICENCE

CONOLD — CONDIST — 14 DAYS ✓

OpenVMS	**QL-NC3AA-2B**
MEDIA	**QA-NC3AA-H5/M**
ULTRIX	**QL-NC6AC-2B**
MEDIA	**QA-NC6AA-H5/M**

Required Software: On OpenVMS: Please ask for SPD 42.95 details. On ULTRIX: ULTRIX V4.2 or later, plus DEC C++ V1.0 or later, or Objectivity/C++ V2.1. SPD 42.94.

DEC Object/DB Application Dev. V1.0

PERSONAL USE LICENCE

CONOLD — CONDIST — 14 DAYS ✓

OpenVMS	**QL-NC4AA-2B**
ULTRIX	**QL-NC7AC-2B**

Required Software: Media and versions as per DEC Object/DB Full Development.

DEC Object/DB Runtime System V1.0

CONCURRENT USE LICENCE

CONOLD — CONDIST — 14 DAYS ✓

OpenVMS	**QL-NC5AA-3B**
ULTRIX	**QL-NC8AC-3B**

Required Software: Media and versions as per DEC Object/DB Full Development.

ACMS and Desktop Access

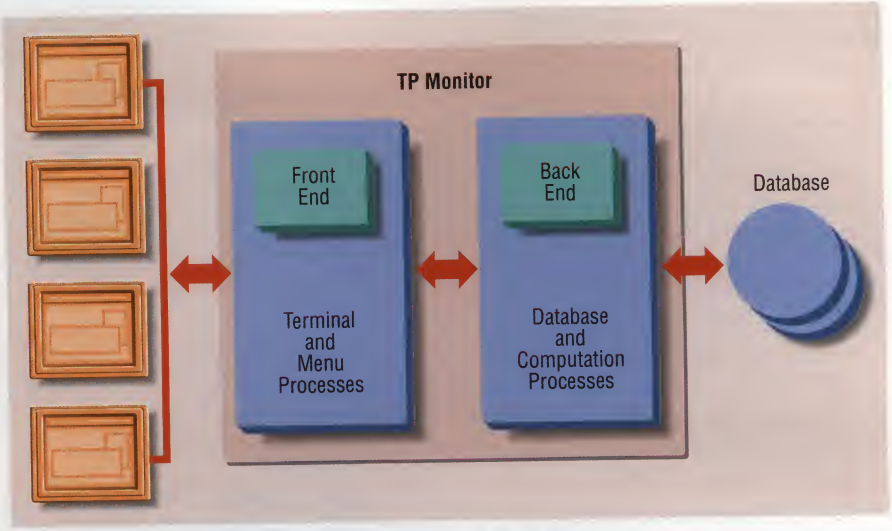
NEW VERSION

VAX ACMS

OPTIMISED TRANSACTION PROCESSING WITH DESKTOP ACCESS

The VAX ACMS Application Control and Management System (ACMS) is a software package for developing, controlling, and running transaction processing (TP) applications. You can use ACMS and the VMS information management products to create a transaction processing development and run-time system that:

- Makes the most of your system resources.
- Gives you flexibility in how you access data and run your application.
- Provides data and transaction integrity.
- Improves programmer productivity.



ACMS at work.

More transaction-processing power

VAX ACMS minimises system overhead and database contention in any large on-line application involving a large number of users sharing data on the same system at the same time. ACMS controls the flow of transactions, and is independent of the data management structure and the systems which capture data and process forms.

VAX ACMS can off-load the collection of transactions onto a separate VAX processor. This can double the application throughput and provide failover capability for greater application availability. This is possible without rewriting application code because of the extensive ACMS application control facilities. ACMS conforms to the DEC Distributed Transaction Architecture (DDTA).

ACMS terminal and menu functions run in processes that are separate from database or file processing and computation functions.

Development, control and management

With VAX ACMS you can:

- Develop ACMS applications:
  - Describe, using a high-level definition language, the work or tasks a user needs to do.
  - Define access and control characteristics for users and devices.
- Control the ACMS run-time system:
  - Control what resources are available to process the tasks in an application.
  - Change system parameters at runtime, 'tuning' your usage of system resources.
- Manage ACMS applications:
  - Monitor and record system activity, application use, and performance.
  - Control the startup and shutdown of applications.

ACMS ensures consistency of data if your system, or part of it, goes down. It provides data integrity through full database journalling and recovery facilities. It also has its own queue-management system of deferred transaction processing, which makes it possible to recover entries without re-typing the information at a terminal.

DECtp Desktop for ACMS

DECtp Desktop for ACMS (often referred to as Desktop ACMS) is layered client software which takes advantage of VAX ACMS as a server system to deliver robust transaction processing to multi-vendor desktop systems. Desktop ACMS offers IS professionals an incredibly rich and open environment for developing production system client/server applications.

The Network Application Support components included in the product are provided through a single software media kit:

- Desktop ACMS Interface for DOS
- Desktop ACMS Interface for Macintosh
- Desktop ACMS Interface for VMS
- Desktop ACMS Interface for ULTRIX/RISC
- Desktop ACMS Interface for SCO UNIX
- Desktop ACMS Server for VMS

The software is licensed through the server on either a concurrent use or capacity basis.

As well as supporting Digital's PATHWORKS products as the connection between client and server systems, the new version 1.1 supports Novell NetWare and TCP/IP network transports.

Desktop ACMS provides:

- Development Environment
- Run-time System
- Management and Control
- Sample Application

VAX ACMS V3.3 | 39 | SPD 25.50 | CONOLD ✓ | CONDIST ✓ | 14 DAYS ✓

CW	B	C	D	E	F	G	H	J	K	L	M	N	Q	S	T	U	V
QL-079A9-J																	

Required Software: VMS V5.4-1, VAX CDD-Plus V4.2a – V4.3.

EXTRA DOCUMENTATION SETS	MEDIA AND DOCS	TK50 5	Tape M
DOCS QA-079AA-GZ	MEDIA QA-079AA-H		

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14	DIST	OLD	AB2	27.29	VMS Volume Shadowing	22
14	DIST	OLD	B13	29.59	RSM VMS Server	35
14	DIST	OLD	B14	29.59	RSM VMS Client	35
14	DIST	OLD	B15	28.30	DEC RTI Rt for VMS	✆
14	DIST	OLD	D04	29.03	DECnet-VAX Extensions Kit	✆
14	DIST	OLD	D05	25.03	DECnet-VAX Routing Phase IV	18
14	DIST	OLD	D08	28.03	VAX Rdb/ELN Target Lic	✆
14	DIST	OLD	D09	25.03	DECnet/OSI for OpenVMS ES EF Upg	18
14			GCR	26.U2	CA 20/20 ALL-IN-1 Driver	✆
14		OLD	GDD	33.64	Objectivity/DB Rt VMS	✆
14			GDF	33.64	Objectivity/DB Rt ULT/R	✆
14	DIST	OLD	GE9	42.51	DEC VUIT for ULTRIX/RISC	78
14			GEJ	33.85	CA 20/20 ULTRIX	✆
14		OLD	GEW	n/a	ULTRIX ConOLD Docs. CD	14a
14	DIST	OLD	GEX		TeamRoute for VMS	✆
14	DIST	OLD	GEZ	33.75	TeamRoute for ALL-IN-1	✆
14			GF1	32.52	SCO UNIX Development	✆
14			GF2	32.56	SCO TCP/IP Development	9
14			GF3	32.56	SCO NFS (needs TCP RT)	9
14			GF4	32.57	SCO Open Desktop Svr Suppl.	9
14			GF5	32.57	SCO Open Desktop Dev	9
14	DIST	OLD	GFF	33.76	DSM for ULTRIX	99
14			GGB	34.11	DECquery for DOS	106
14			GGC	34.12	DECquery for MAC	106
14			GGD	34.13	DECquery for MS Windows	106
14	DIST	OLD	GH9	33.98	DEC Rdb Language Trans	✆
14			GHR	34.06	DECmessageQ for MS-DOS	✆
14			GHS	34.09	DECmessageQ for OS/2	✆
14	DIST		GHT	34.08	DECmessageQ for ULT/RISC	✆
14		OLD	GHV	34.07	DECmessageQ for VMS Rt	✆
14			GJ7	34.21	DECnet for SCO Prog Lib	✆
14	DIST	OLD	GJ8	36.21	DEC File Optimizer	38
14	DIST	OLD	GJ9	34.26	DECram	✆
14	DIST	OLD	GJF	34.24	DECimage Char Rec VMS	✆
14	DIST	OLD	GKL	26.N1	DECinspect CM for VMS	✆
14	DIST	OLD	GKM	26.N2	DECinspect SRF for VMS	✆
14	DIST	OLD	GKP	34.07	DECmessageQ for VMS Dev	✆
14	DIST	OLD	GKQ	34.07	DECmessageQ for VMS LU6.2	✆
14			GLV	34.76	PATHWORKS DOS NetWare CoEx	30
14	DIST	OLD	GMP	34.27	Disk Shadowing ULT/RISC	5

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14			GMW	34.60	CA VIVID	✆
14			GMX	26.T6	CA VIVID ALL-IN-1	✆
14			GN2	32.57	SCO Open Desktop Server 3.5"	9
14			GT9	34.29	DEC LMF PAK Generator ULT	✆
14			GTE	26.E6	DEC X.25 Access	✆
14			GU3	32.46	DECmcc Director ULT/RISC	45
14	DIST		GU5	32.48	DECmcc BMS ULTRIX/RISC	46
14	DIST	OLD	GU7	32.49	DECmcc Developer Tool ULT	✆
14	DIST		GUT	34.19	DEC Signaling System	✆
14	DIST	OLD	GUX	29.59	RSM ULTRIX/RISC Client	✆
14			GUY	27.85	DTF for VM	✆
14	DIST		GVR	29.90	DECforms Dev ULTRIX	✆
14	DIST		GVS	29.90	DECforms Runtime ULTRIX	✆
14	DIST	OLD	GVT	31.26	DECmcc TSAM for VMS	48
14	DIST	OLD	GVZ	34.88	DECamds Console for OpenVMS	✆
14	DIST	OLD	GW3	34.88	DECamds Driver for OpenVMS	✆
14	DIST	OLD	GX1	36.02	DECps Data Collect	36
14	DIST	OLD	GX2	36.03	DECps Perf Advis	36
14	DIST	OLD	GX3	36.04	DECps Capcty Plan	37
14	DIST	OLD	GX7	36.05	DECNIS Router Licence	✆
14	DIST	OLD	GX8	31.33	DECmcc ELM AM for VMS	48
14		OLD	GX9	31.33	DECmcc ELM FM for VMS	✆
14			GXA	33.50	DECfonts ITC	59
14			GXB	33.50	DECfonts Bodoni	59
14			GXC	33.50	DECfonts Headline 1	59
14			GXD	33.50	DECfonts Helvet B/L	59
14			GXE	33.50	DECfonts Helvet Comp	59
14			GXF	33.50	DECfonts Helvet Cond	59
14			GXG	33.50	DECfonts Decorative	59
14			GXH	33.50	DECfonts News 1	✆
14			GXJ	33.50	DECfonts Bauer Bodoni	59
14			GXK	33.50	DECfonts Futura 1	59
14			GXL	33.50	DECfonts Futura Cond	59
14			GXM	33.50	DECfonts Futura 2	59
14			GXN	33.50	DECfonts Folio	59
14			GXP	33.50	DECfonts Headline 2	59
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14	DIST	OLD	GXX	34.82	VMS POSIX + IEEE doc	17
14			GY6	33.50	DECfonts Cent Old	59
14	DIST	OLD	GZ9	32.98	WANrouter 100/500 Migr	✆
14	DIST	OLD	GZG	34.81	DECtp Desktop ACMS	✆
14	DIST	OLD	GZL	36.17	DECnsr Srvr ULTRIX/RISC	41
14			GZN	36.05	DECNIS/Bridge	✆
14	DIST	OLD	GZQ	21.41	DEC Ada for ULTRIX/RISC	✆
14	DIST	OLD	GZR	34.98	VMS OSI Appl Dev Toolkit	✆
14	DIST	OLD	GZS	34.98	ULT OSI Appl Dev Toolkit	✆
14			GZX	36.24	WANrouter 150/250 Migr	✆
14			LAW	26.N1	DECinspect CM/DECforms Rt	✆
			LCC	n/a	DEC FUSE Pack Dst 31/51/50	✆
14	DIST	OLD	MA4	25.59	Rdb OpenVMS VAX Runtime	102
14	DIST	OLD	MA6	36.17	DECnsr Single ULTRIX/RISC	✆
14			MAK	37.11	ULTRIX/SNA	✆
14			MAV	37.25	DEC FUSE for Sun	79
14		OLD	MC1	36.86	NAS 200 VMS	✆
14		OLD	MC2	36.85	NAS 300 VMS	✆
14		OLD	MC5	36.90	NAS 400 VMS	✆
14	DIST	OLD	MC6	38.42	DECTPU for ULTRIX/RISC	✆
14			MCW	38.65	PATHWORKS Conferencing Wd	✆
14	DIST	OLD	MD1	36.77	DECquery for VMS	✆
14	DIST	OLD	MD2	36.78	DECquery for ULTRIX	✆
14			MD8	37.62	DEC RALLY for DOS	96
14			MDJ	39.71	DECmcc Opt Config VMS	✆
14			MDK	39.71	DECmcc Opt Config ULTRIX	✆
14	DIST		MDL	39.72	DECmcc Opt Fault Diag VMS	✆
14			MDM	39.72	DECmcc Opt Fault Diag ULT	✆
14			MDN	39.73	DECmcc Opt History VMS	✆
14			MDP	39.73	DECmcc Opt History ULT	✆
14			MDQ	39.74	DECmcc Opt Perform VMS	✆
14			MDR	39.74	DECmcc Opt Perform ULTRIX	✆
14			MDS	39.75	DECmcc Opt Notify VMS	✆
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14			MG7	37.43	eXcursion for Windows	10
14			MGA	37.76	ACA Services Windows Dev	✆
14			MGB	37.76	ACA Services Windows Rt	✆
14			MGC	37.27	ACA Services Sun Dev	✆
14			MGD	37.27	ACA Services Sun Rt	✆
14	DIST		MGU	38.67	DECmcc ELM AM ULT/RISC	48
14			MGV	38.67	DECmcc ELM FM ULT/RISC	✆
	DIST	OLD	MH5	38.48	DECimage Char Rec ULT/RISC	✆
14	DIST		MH6	40.61	DECdesign Platform ULT/RISC	✆
14	DIST	OLD	MH7	29.29	DECdesign Ptech OpenVMS	✆
14	DIST	OLD	MH8	29.29	DECdesign Coad/Yourdon VMS	✆
14	DIST		MHA	40.61	DECdesign Gane & Sarson U/R	✆
14	DIST		MHB	40.61	DECdesign MERISE ULT/RISC	✆
14	DIST		MHC	40.61	DECdesign Yourdon ULT/RISC	✆
14	DIST		MHD	40.61	DECdesign Ptech ULTRIX/RISC	✆
14	DIST		MHF	40.61	DECdesign Coad/Yourdon U/R	✆
14			MHH	-	TeamLinks PATHWORK + Appl	61
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14	DIST		MJ1	37.39	DEC C++ for OpenVMS	✆
14			MJ2	38.49	KAP for DEC FORTRAN	77
14			MJ3	38.52	KAP for ULTRIX C	✆
14			MJ4	38.51	KAP for VAX C	✆
14			MJ5	38.50	KAP for VAX FORTRAN	77
14	DIST	OLD	MJP	38.71	DECserver 90TL for DOS	✆
14			MK4	39.26	DECmessageQ for MAC	✆
14	DIST	OLD	MK6	39.25	DECmessageQ UNIX ULT/R Dev	✆
14		OLD	MK7	39.25	DECmessageQ UNIX SV/88 Dev	✆
14		OLD	MK8	39.25	DECmessageQ UNIX HP-UX Dev	✆
14	DIST	OLD	MKC	39.25	DECmessageQ UNIX ULT/R RT	✆
14		OLD	MKD	39.25	DECmessageQ UNIX SV/88 RT	✆
14		OLD	MKE	39.25	DECmessageQ UNIX HP-UX RT	✆
14			MKF	39.25	DECmessageQ for Sun	✆
14		OLD	MKL	27.04	DEC OPS5 Compiler for VMS	✆
14	DIST	OLD	MKM	39.31	DEC OPS5 for ULTRIX/RISC	✆
14	DIST	OLD	ML1	39.16	POLYCENTER Sys Cens Agent V	✆
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14	DIST	OLD	ML4	39.19	POLYCENTER Sys Cens Cons V	✆
14	DIST	OLD	ML6	39.20	POLYCENTER Sys Cens Cons U	✆
14	DIST	OLD	ML7	39.20	POLYCENTER Sys Cens GUI V	✆
14	DIST	OLD	ML9	39.20	POLYCENTER Sys Cens GUI U	✆
14	DIST		MLB	41.26	DECinspect CM ULTRIX/RISC	✆
14			MLC	41.25	DECinspect CM for SunOS	✆
14	DIST	OLD	MLD	30.89	DEC GKS for ULTRIX/RISC	95
14	DIST		MLE	30.93	DEC GKS Runtime ULT/RISC	✆
14	DIST	OLD	MLJ	39.48	ALL-IN-1 Performance Rep.	66
14			MNU	39.56	XD Ada MC68000	✆
14			MNV	39.57	XD Ada MC68040	✆
14	DIST	OLD	MPQ	40.89	SQL Access Server	111
14	DIST		MPS	49.01	DEC VTX Text Retrieve Sys	✆
14	DIST	OLD	MQ6	41.23	Graphical Schema Editor GSE	✆
14			MQG		Vivace for Windows	3
14	DIST	OLD	MQX	43.22	POLYCENTER SNA Manager	48
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14	DIST		MR7	41.12	MAILbus 400 API ULTRIX	✆
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14	DIST	OLD	MRN	41.27	DECinspect ID for VMS	✆
14	DIST	OLD	MT1	41.87	OpenVMS AXP CONOLD/DIST	14
14	DIST	OLD	MT2	41.87	OpenVMS AXP Int.1 user	14
14	DIST	OLD	MT4	41.61	DEC OSF/1 AXP CONOLD/DIST	14a
14	DIST	OLD	MT7	41.61	DEC OSF/1 AXP Single User	14a
14	DIST	OLD	MTF	42.25	DECnet End Node OpenVMS AXP	✆
14	DIST	OLD	MTN	34.97	DECnet/OSI ULT/RISC End	6
14	DIST	OLD	MTY	41.42	POLYCENTER Sys Watch Cons	37
14	DIST	OLD	MTZ	41.43	POLYCENTER Sys Watch Agent	37
14	DIST	OLD	MU7	42.26	DEC C for OpenVMS AXP	✆
14	DIST	OLD	MUP	42.29	DECset OpenVMS AXP	✆
14	DIST	OLD	MUV	41.84	DXML Dev. OpenVMS AXP	✆
14	DIST	OLD	MUW	41.84	DXML RT OpenVMS AXP	✆
14	DIST	OLD	MV1	25.16	DEC FORTRAN OpenVMS AXP	✆
14	DIST	OLD	MV3	34.26	DECram OpenVMS AXP	✆
14	DIST	OLD	MV4	42.19	DECwindows Motif VMS AXP	✆
14	DIST	OLD	MVS		DEC FMS Development AXP	✆
14	DIST	OLD	MVT		DEC FMS Form Drvr RT AXP	✆
14	DIST	OLD	MW1	29.67	SLS-ACS StorageTek OpenVMS	✆
14	DIST	OLD	MWM	39.44	DECmigrate OpenVMS AXP	✆

A POLYCENTER PRODUCT

VAXcluster Console System

MIXED SYSTEM CONSOLE MANAGEMENT

The VAXcluster Console System (VCS) provides consolidated console management for a distributed, heterogeneous environment. Its benefits include:

- Enhanced problem management
- Better control through automation
- Improved operator/manager productivity.

The word *VAXcluster* in the product name does not give the whole story! VCS will manage up to 32 system console lines from any device that supports RS232 and sends ASCII text. Some of the Digital products VCS supports are VAX systems, DECsystems, VAXstations and DECstation workstations, HSCs, LANbridges and the LPS40 printer. VCS is particularly useful for managers with CI VAX systems, whether they are clustered or not.

VCS software provides sample scan profiles for character string searches. The customer or Digital Service may add, change, and delete scan profiles to meet operational needs. VCS can notify the manager via graphical and text display, Mail, Broadcast or DECtalk. VCS can also activate corrective action routines.

Centralised control

VCS is uniquely flexible due to indirect connection through terminal servers. This provides for more robust failover and reconfiguration capabilities. Additionally, VCS allows you to locate your System Management remotely from the computer devices themselves. This capability has been found to be extremely useful in 'Lights-out' environments, where the system is expected to run without physical supervision for long periods.

VCS offers an extensive user interface which:

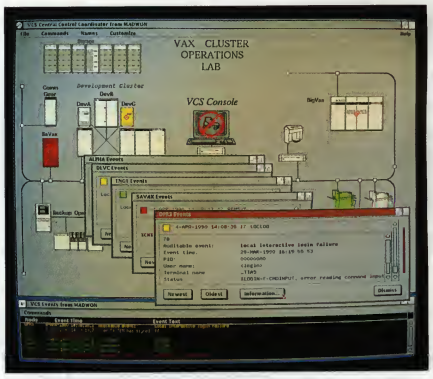
- Enables the user to see the entire context of the console event;
- Enables the user to choose a command line or DECwindows interface;
- Enables multiple users to monitor and/or connect to the same console.

Licence and use

The VAXcluster Console System is licensed on a 'per 1 connected line' basis. Owing to the nature of this product, it is recommended that VCS is run on a dedicated VAX processor. There is no extra software required on the resource being managed.

New features for V1.4

- New Emulation Package simulates VCS capabilities to assist users in becoming more proficient with VCS without risk to their production environment.
- Enhanced set of message scanning templates or profiles.
- Enhanced availability through support of VAXft systems as the VCS host.



VAXcluster Console System V1.4	SPD 27.46
CONCURRENT USE LICENCE	
CONOLD ✓ CONDIST ✓ 14 DAYS ✓	
LICENCE	QL-V01AA-3B
MEDIA	QA-V01AA-H5
or	QA-V01AA-HM

Required Software: VMS V5.4 – V5.5.

DEC Network Save and Restore

BACKUP SERVICES FOR TCP/IP NETWORKS

NEW VERSIONS

DECnsr Client/Server for ULTRIX RISC

DEC Network Save and Restore (DECnsr) for ULTRIX provides backup services to single systems and groups of systems on a TCP/IP network. DECnsr will run on ULTRIX VAX and RISC, and features:

- On-line backups
- Automated operation with proper system configuration
- Easy backup/restore/browse operation by users and administrators
- Data compression support

DECnsr uses a client/server architecture. The server software handles backup, restore, and browse requests from client software. systems, and sends the data to the server software in save operations. In recover operations, the client software provides a browsing and file selection user interface, and requests selected files from the server software. SUN (SunOS), HP (UX) and MIPS (RISC/os) machines can be supported as clients with the correct network hardware and software (licence QL-XYXAC-3B). PCs can also be supported as a client (licence QL-069AC-3B). There is one server media which also contains all client media.

DECnsr is licensed in two ways:

- A single system licence for backing up a single machine to a locally connected backup device (client and server on a system with a local storage device via a TCP/IP network. This is controlled by two licences: A Server licence and Client licences. The DECnsr server also requires a client licence.

DECnsr Client ULTRIX/RISC V2.0	SPD 36.17
CONCURRENT USE LICENCE	
CONOLD ✓ CONDIST ✓ 14 DAYS ✓	
LICENCE	QL-XYXAC-3B

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14		OLD	XVD	36.89	NAS 250 VMS	✆
14			XWW	36.95	Mobilizer ALL-IN-1 VMS Svr	✆
14			XWX	36.95	Mobilizer ALL-IN-1 DOS Clt	✆
14	DIST	OLD	XWZ	36.81	PL/1 for RISC ULTRIX	✆
14			XXN	55.29	DEC RTR Frontend DOS	✆
14	DIST	OLD	XYX	36.17	DECnsr Client ULTRIX & other	41
14			XYZ	33.84	Adobe Illustrator for ULT	✆
14			XZ1	33.50	DECfonts Adobe Garamond	✆
14			XZ3	33.50	DECfonts Berthold Walbaum	✆
14			XZ4	33.50	DECfonts Frutiger	✆
14			XZ5	33.50	DECfonts Gill Sans 1	✆
14			XZ6	33.50	DECfonts Gill Sans 2	✆
14			XZ7	33.50	DECfonts ITC Garamond	✆
14			XZ8	33.50	DECfonts Office 1	✆
14			XZ9	33.50	DECfonts Optima	✆
14			XZA	33.50	DECfonts Shannon	✆
14			XZB	33.50	DECfonts Symbol 1	✆
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14			XZD	33.50	DECfonts Univers Cond	✆
14			XZJ	39.15	DEC MAILworks for Windows	62
14	DIST	OLD	Y30	25.50	VAX ACMS Remote Option	✆
14	DIST	OLD	YCZ	39.59	DEC MAILworks Server	✆
14			YE4	26.Z1	XD Ada MC68020	✆
14	DIST	OLD	YE8	29.67	SLS Remote OpenVMS	43
14	DIST	OLD	YEA	31.64	VAXft System Services	✆
14	DIST	OLD	YEL	31.66	VAX Disk Striping Driver	22
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14		OLD	YF7	31.73	DECimage Appl Svcs RISC	✆
14		OLD	YF8	31.75	DECimage Scan ULT/RISC	✆
14			YFE	50.20	ALL-IN-1 DESKtop for DOS	65
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14	DIST	OLD	YFP	31.79	DECelms	✆
14		OLD	YFT	39.59	DEC MAILworks LAN Pack	✆
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14	DIST		YG6	32.15	DECrouter 250 MS-DOS Ld SW	✆
14			YG7	50.19	DSM DDP-DOS	99
14	DIST	OLD	YG8	32.06	VAX CITMD Message Desk	✆
14		OLD	YG9	31.30	CDA Conv Lib for ULT/RISC	✆
14			YGA	31.05	DECwrite British Lexicon	✆
14			YGB	31.05	DECwrite USA Bus Lexicon	✆
14			YGC	31.05	DECwrite USA Med Lexicon	✆
14		OLD	YGD	31.22	DECimage Storage Mgr Clt	✆
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14	DIST	OLD	YHG	32.08	DECpresent for ULT/RISC	✆
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14		OLD	YLH	36.62	DECtp Development Package	✆
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14	DIST	OLD	YM4	31.70	DEC/EDI X400	✆
14	DIST	OLD	YM5	31.70	DEC/EDI OFTP	✆
14	DIST	OLD	YM6	31.70	DEC/EDI Bisync Comm	✆
14	DIST	OLD	YM7	31.70	DEC/EDI Bisync Pkge	✆
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14			YQ4	32.83	UNIPLEX Adv Graphics 4 User	✆
14			YQ9	32.83	UNIPLEX Windows Opt 16 Ur	✆
14			YQD	32.83	UNIPLEX II Plus 16 User	✆
14			YQE	32.83	UNIPLEX Add Dictionaries	✆
14			YQJ	32.78	CA 20/20 GOLD VMS	71
14	DIST	OLD	YQV	32.80	DEC RdbAccess for Oracle	108
14			YQW	38.30	CDA Base Svcs for OS/2	✆
14			YQX	38.29	CDA Base Services MS-DOS	✆
14	DIST	OLD	YQZ	32.88	DEC RdbAccess for RMS	108
14		OLD	YSJ	28.22	DEC C for RISC	91
14	DIST	OLD	YSU	32.48	DECmcc BMS for VMS	46
14	DIST	OLD	YSW	32.49	DECmcc Developer Tool VMS	✆
14	DIST	OLD	YSY	42.73	X.25 PATHWORKS DOS	✆
14	DIST	OLD	YT1	32.48	DECmcc Director to BMS Upg	✆
14	DIST		YT5	31.88	DECmcc BMS to EMS Upg	✆
14	DIST	OLD	YT8	32.97	X.25 Gateway 100/500	✆
14	DIST	OLD	YT9	34.97	DECnet/OSI U/RISC Extended	6
14	DIST	OLD	YTA	32.34	X.25 Gtwy Client ULT/RISC	6
14	DIST	OLD	YTC	33.91	InfoServer 150 VMS Client	✆
14	DIST	OLD	YU9	33.17	BASEstar for VMS	✆
14	DIST		YUA	33.17	BASEstar for VMS Runtime	✆
14	DIST		YUG	33.18	DECmcc Mgmt Stn ULT/RISC	48
14			YUP	29.94	VAX Packetnet LLC2 Pink Bk	✆
14	DIST	OLD	YUQ	32.43	DEC RTI Dev for ULT/RISC	✆
14		OLD	YV4	25.G1	DECtrace Collector	104
14	DIST	OLD	YV8	32.43	DEC RTI Rt for ULT/RISC	✆
14			YV9	33.45	PATHWORKS DOS TCP/IP	31
14	DIST	OLD	YWE	33.46	DEC SERdb	✆
14	DIST		YWL	32.94	MUXserver 320/380 ULTRIX	✆
14			YWP	31.68	DEC LMF PAK Generator VMS	✆
14	DIST	OLD	YWQ	28.30	DEC RTI Dev for VMS	✆
14			YWR	33.69	VAXELN Window Svr VMS Ld	10
14			YX1	39.62	DEC MAILworks for Mac	62
14			YX2	33.48	DECconcentrator 500 Upg	✆
14			YX3	33.48	DECbridge 500 Upg	✆
14			YX4	33.50	DECfonts LaserWrit Em	59
14		OLD	YX6	33.50	DECfonts for ULTRIX	59

14 = 14 Day delivery
DIST = Consolidated Distribution Disk
OLD = On-line Documentation
UPI = Unique Product Identifier. Used in the Part Number as follows: **QL-XXXXX-XX**
SPD = Software Product Description

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NOTES

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